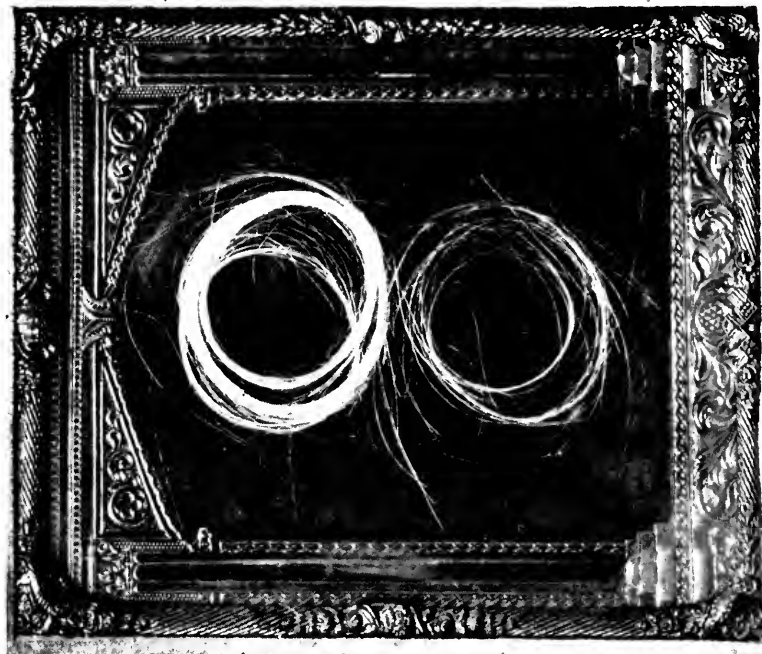


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Copy of Field portrait of Washington and locks of his hair, from a Daguerreotype in the Collections of The Wyoming Historical and Geological Society, Wilkes-Barre, Pa.

W.S. Hist
W.
Coxe Publication Fund.

PROCEEDINGS

AND

COLLECTIONS

OF THE

WYOMING HISTORICAL AND GEOLOGICAL SOCIETY,

FOR THE YEAR 1919.

EDITED BY

CHRISTOPHER WREN.

Corresponding Secretary and Librarian.



VOLUME XVII.

WILKES-BARRÉ, PA.

PRINTED FOR THE SOCIETY.

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27 / 11 / 22

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Wilkes-Barre, Pa.
October, 1920.

PREFACE.

In the year 1919 the usual activities of the Society have been maintained, as in past years, notwithstanding the changes which are still with us as an aftermath of the great World War.

The number of inquiries from a distance, about matters in which it is known that our Society is interested, indicate that we are becoming known in a continually widening field throughout our country.

This gratifying intercourse which we have with leading institutions is, without a doubt, the result of the quality and arrangement of the publications which the Society has issued, under the direction of my predecessor, the Reverend Horace E. Hayden.

With this legacy, which he has left us as a pattern and foundation, we shall endeavor to mark up to the standard that he has set in the matter printed in previous volumes, so far as we are able.

As volume I has become unobtainable because only a few copies were printed in the early days of the Society, we reprint in this volume the lecture on "Coal" by Volney L. Maxwell, Esq., and Steuben Jenkin's paper read before the Society on "A Yankee Celebration of Ye Olden Time," both of which appeared in volume I and should not have lost interest to us of the present day.

All of the general features of preceding volumes are retained and it is hoped that the addresses delivered during the past year, and printed in this volume, will be found to deal with subjects that come within the scope of our Society, and will interest our readers.

It will be noticed that this volume is somewhat smaller than the last; this has been caused by the very much higher cost of printing and binding, and our efforts to keep within the money available in The Publishing Fund.

CHRISTOPHER WREN,
GEORGE F. CODDINGTON,
Publishing Committee.

THE WYOMING HISTORICAL AND GEOLOGICAL SOCIETY,

WILKES-BARRE, PENNSYLVANIA.

Organized 1853,

Has a handsome and permanent home provided by the will of the late Isaac S. Osterhout, founder of the Osterhout Free Library.

A library of 20,000 books and pamphlets not duplicated in the Osterhout Free Library, including United States and Pennsylvania publications.

Collections of about 45,000 Archeological, Ethnological and Geological specimens displayed in its cases.

The rooms are open to the public daily, except Sunday, for reference and study, from 10:00 a. m. to 5:00 p. m.

The members receive all publications and privileges free.

The Society has published seventeen volumes, besides pamphlets.

The Geological Library has over 2,000 volumes, including State reports.

The Society desires to secure rare Indian relics, with a view to making as complete a showing of our region as possible, also geological specimens and local antiques.

Address,

Wyoming Historical and Geological Society,

Wilkes-Barre, Pa.

FORM OF A BEQUEST.

I give and bequeath to the "WYOMING HISTORICAL AND GEOLOGICAL SOCIETY," the sum of (*insert here the sum to be given*) for the use of said Society absolutely.

FORM OF A DEVISE.

I give and bequeath (*insert a description here of the real estate to be given*) unto the "WYOMING HISTORICAL AND GEOLOGICAL SOCIETY" its successors and assigns forever.

The Publications of the Society are for sale. Also copies of Pennsylvania Mine Inspector's Reports and The 2nd Geological Survey of Pennsylvania.

We also have a number of sets of Johnson's Historical Record of Wyoming Valley for sale, which contains much matter of local and general interest.

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REPORTS AND COLLECTIONS

OF THE

Wyoming Historical and Geological Society

Volume XVII

WILKES-BARRE, PA.

1920

PROCEEDINGS.

**Report of the Librarian and Corresponding Secretary for the
Year ending February 11, 1920.**

*To the President, Officers and Members of The Wyoming
Historical and Geological Society, Wilkes-Barre, Pa.*

During the year 1919 and since volume No. XVI was issued about a year ago, the four regular quarterly meetings have been held, all of which were attended by good sized audiences, which seemed to enjoy the exercises, and the papers which were read.

On April 11, 1919, Mr. N. H. Darton, F. G. S. A., of Washington, D. C., read a paper on "The Grand Canyon of The Colorado in Arizona", illustrated by colored slides, which was very interesting and instructive.

It was almost like a visit to the Canyon itself with a good guide as the lecturer called attention to the various points and objects of interest, and for those present who are students of geology, or whose business requires a knowledge of that subject, the different strata which are exposed in the precipices almost one mile high, that form the walls of the Canyon, were explained.

Mr. Darton gave in his lecture much first-hand information, as he spent much time at the Canyon as a member of the United States Geological Survey.

At our regular quarterly meeting, on October 24, the Rev. C. H. Frick of Wilkes-Barre read a paper on "The Wild Flowers and Plants of Wyoming Valley and Vicinity," which was listened to by an interested and attentive audience.

The information presented by the speaker and illustrated on the screen by colored slides which he had made himself

from nature, gave us a new idea of the richness and variety of the vegetable life found in our region, from the lower level of the valley to the summits of the mountains which surround it.

Reverend George P. Donehoo of Coudersport, Pa., Secretary of The Pennsylvania Historical Commission, delivered a lecture on "The Indian Trails of Our State," on December 12, 1919, illustrated by photographic views, with explanatory remarks.

As the Annual meeting, February 11, 1920, was taken up with reading of reports, election of officers, etc., no paper was presented at the meeting.

The three papers above mentioned are printed in this volume, together with the paper by Christopher Wren "On Portraits of Eminent Americans."

It was intended to read the last paper mentioned at the Annual meeting in February, but owing to other business matters taking up the time it was deferred until the meeting in May, when the quarterly meeting was for the first time held, after by amendment of the By-Laws the date of holding this meeting was made in May instead of in April.

CORRESPONDENCE.

During the year we have had letters of inquiry touching several things in our locality; one from a lady in Philadelphia asking about residences in Wilkes-Barre one hundred or more years old, which we were able to answer by sending her photographs of several such buildings.

Another inquiry was from a lady at Nyack, N. Y., about historic trees in our vicinity, which was turned over to Miss Martha A. Maffett for an answer.

We understand that in both cases the data furnished will be used in books which these ladies are writing on the subjects mentioned.

We have had numerous letters during the year on the subject of family history and genealogy from distant points, more particularly from the West, and in most cases we have been able to give data and references which would be helpful, without attempting exhaustive genealogical details.

During the year 1919 about 5,950 persons visited our rooms, divided as follows:

370 students, who received personal assistance in their study.

1,678 other adults who visited our museum.

3,900 children, many of them from the public schools, accompanied by their teachers.

Our Register shows, also, we had one or more visitors from distant places, as follows: Arizona, Balboa, Canal Zone, Bermuda, California, Canada, Connecticut, Delaware, London, England (2), U. S. Field Artillery, U. S. Navy, Florida, Paris, France (1), Illinois, India (1), Iowa, Kansas, Kentucky, Maine, Maryland, Massachusetts, Michigan, Minnesota, Nebraska, New Jersey (9), New York (67), including nine from Buffalo and thirty from New York City, North Carolina (3), Ohio, Pennsylvania (85), including twenty-four from Philadelphia and seven from Pittsburgh, South Carolina, South Dakota, Glasgow, Scotland, Spain, Tennessee, Texas, Utah, Vermont, Virginia, Washington, D. C., and Wisconsin.

Most of the accessions to our library by gift, purchase and exchange, received during the year, are catalogued in the following list:

REPORTS.

Books Presented in Year Ending February 11, 1920.

President Irving A. Stearns (with other volumes):

American Institute of Mining Engineers.....	3	Vols.
Thwaite's Early Western Travels.....	32	"
Descendants of Capt. George Denison.....	1	"
History of the Starr Family.....	1	"
Hyde Genealogy	2	"
First Settlers of the Ancient County of Albany..	1	"
Wadham's Genealogy	1	"
History of North Brookfield, Mass.....	1	"
History of the Town of Lexington, Mass.....	1	"
Histories of the Counties of Orange and New-		
burg, N. Y.....	1	"
The Strong Genealogy	2	"
History of the Town of Arlington, Mass.....	1	"
History of Sussex and Warren Counties, N. J...	1	"
Historical Sketches of Andover, Mass.....	1	"
Life of Col. John C. Fremont.....	1	"
The Stearns Family and Descendants.....	1	"
Views from Plymouth Rock.....	1	"
The History of The Pilgrims.....	1	"
The Story of the Indian.....	1	"
Through Colonial Doorways	1	"

History of New London, Conn.....	I	Vol.
Rupp's Collection of Thirty Thousand Names of Immigrants to Pennsylvania	I	"
Bergen Genealogy, T. G. Bergen	I	"
Watertown Records, Watertown, Mass, 1894....	I	"
Early Settlers, of Watertown. Bond	I	"
History of Kingston, N. Y. M. Schoonmaker..	I	"
Henry Baldwin Hyde, privately printed 1902....	I	"
History of Herkimer County, N. Y. N. S. Benton	I	"
The Making of Pennsylvania. S. G. Fischer....	I	"
Pennsylvania at Gettysburg	2	"
Annals of Luzerne County, Penn'a. Stewart Pearce	I	"
History of Wyoming, Miner	I	"
Families of the Wyoming Valley. Kulp.....	3	"
Historical Essays. Kulp	I	"
Wyoming Memorial. Wesley Johnson	2	"
Poetry and History of Wyoming. Wm. L. Stone	I	"
Story of Wyoming Valley. S. R. Smith.....	I	"
Francis Slocum and Sidney Lear. C. E. Wright..	I	"
Historical Sketches of Plymouth, Pa. H. B. Wright	I	"
The Black Trail of Anthracite. S. R. Smith....	I	"
Report of the Anthracite Coal Strike, 1902....	I	"
Savage's Genealogical Dictionary	I	"
Virginia Genealogies. H. E. Hayden.....	I	"
Lodge No. 61, F. & A. M., 1794-1897. O. J. Harvey	I	"
History of The Lackawanna Valley. H. Hollister	I	"
Provincial Councillors of Pennsylvania. Keith..	I	"
History of Luzerne, Lackawanna & Wyoming Counties	I	"
By Mrs. E. Greenough Scott:		
From Manassas to Appomatox	I	"
Robert E. Lee, Man and Soldier	I	"
Destruction and Revolution	I	"
Lieut. Gen'l Jubal Anderson Early.....	I	"
Luzerne, Lackawanna and Wyoming Counties, Penn'a.	I	"
Elements of Geology	I	"
Heckwelder's Indian Nations	I	"
History of New Sweden	I	"
Myths of the World	I	"

American Hero Myths	I	Vol.
The Birth of Modern Italy	I	"
Diocese of Bethlehem and Harrisburg	2	"
The Old New York Frontier	I	"
Sports and Pastimes	I	"
Memorial of Henry S. Gansevort	I	"
Maberly's Print Collector	I	"
The Puritan in Holland, England and America..	2	"
Romance of The French Abbeys	I	"
The Works of Sir William Jones, Vols. 1-2-3-4-9.	5	"
Our Philadelphia	I	"
The French in America	I	"
Rise of the Dutch Republic.....	I	"
The Book Hunter	I	"
The Diary of Gideon Welles	3	"
By Mrs. E. M. Bamford:		
Life in a New England Town, 1787-1788.....	I	"
History of the Sage and Slocum Families.....	I	"
The Klein and Allied Families	I	"
Historical Papers; Historical Society, Newburg Bay and The Highlands, N. Y., No. 6, 1900..	I	"
By State of Massachusetts:		
Vital Records of West Newbury	I	"
Vital Records of Shirley	I	"
Vital Records of Carlisle	I	"
By Mr. Oscar J. Harvey:		
History of The Farmers Trust Company, Lan- caster, Pa. Diffenderffer, 1810-1910.....	I	"
By Mr. Willis T. Hanson:		
History of Schenectady, N. Y., During the Revo- tion	I	"
By Mr. Oscar M. Lance:		
Dissertation of the Prophecies	2	"
By Mr. C. W. Bixby:		
The Bixby Genealogy	3	"
Yale University	I	"
The Port of Hamburg.....	I	"
The Port of Boston	I	"
By Mr. Edwin Swift Balch:		
Sketch of The Wister Party of Philadelphia....	I	"
Magna Charta Barons, and Their Descendants..	I	"
The Centenary of The Wister Party, 1818-1918	I	"

Lewis Publishing Co.:

Biographical Encyclopedia of Pennsylvania.... 1 Vol.

By Mr. Robert Bruce:

History of the Town of Medford, Mass..... 1 “

The National Road 1 “

By Mr. and Mrs. H. J. Carr:

Piscataqua Pioneers Society, Register of Mem-
bers and Ancestors 1 “

By Hon. Sterling R. Catlin Estate:

History of Luzerne, Lackawanna and Wyoming
Counties, Pa. 1 “

Coal, Iron and Oil. Daddow & Bannan 1 “

History of The Army of Potomac 1 “

History of G. A. R..... 1 “

Pennsylvania at Gettysburg..... 2 “

Pennsylvania at Gettysburg Reunion, 1863-1913 2 “

Pennsylvania at Salsbury, North Carolina..... 1 “

Western Tour 1 “

England and Germany in the War..... 1 “

Catechism of the Steam Engine. Bourne..... 1 “

University of Pennsylvania Catalogue, 1914-1915 2 “

Prominent Men of Scranton and Wilkes-Barre.. 1 “

Our Vanishing Wild Life..... 1 “

Encyclopædia of Biography 2 “

The American Government 1 “

Genealogy of the Fell Family 1 “

20th Century Atlas 1 “

Susquehanna Flood Scenes, Pittston to Danville,
1904 1 “

Wyoming Valley Scenes, 1902 1 “

By Capt. Arthur L. Zerbey:

The Story of the Field Artillery Central Officers
Training School, 1919 (World's War) 1 “

By Dr. and Mrs. George Woodward:

One Year for France, War Letters of Houston
Woodward 1 “

By Mr. Frank Willing Leach:

Certain Black Letter Days in the Life of William
Penn 1 “

By Mrs. Charles Loveland:

Memoir of Carpenter 1 “

Harvard Memorial Biographies 2 “

By Mrs. Luther C. Darte:
2nd Geological Surveys 15 Vols.

By Mr. Chester B. Derr:
Soldiers' National Cemetery, Gettysburg 1 "

BOOKS PURCHASED DURING THE YEAR ENDING FEB. 11, 1920.

Chronology of Selins Grove, Pa.	1	Vol.
History of the World War	3	"
History of Farmingham, Mass.....	1	"
Gregory Stone Genealogy	1	"
Notable Southern Families	1	"
North American Ethnology. Hrdlicka	1	"
Encyclopedia Britannica	28	"
Journal of American History	5	"
Magazine of History	3	"
Americana	3	"
Pedigree, Register	1	"
Records of Massachusetts' Volunteer Militia, 1812-1814	1	"
Elmira Prison Camp (Civil War), Elmira, N. Y..	1	"
The Hidden Children, Elmira, N. Y.....	1	"
Pioneer and Patriot Families of Bradford Co., Pa. 1770-1800	2	"
Miscellaneous Genealogy and Heraldry	1	"
New Haven Town Records, Conn., 1649-1684....	2	"
Lives of Governors of Pennsylvania	1	"
Pennsylvania Dutch and Other Essays.....	1	"
New Haven Historical Society, Ancient Record Series	2	"
Greater Wilkes-Barre Directory, 1919-1920.....	1	"
American Year Book	1	"
Topsfield Historical Collections, Topsfield Historical Society, Mass.	2	"
Topsfield Town Records	1	"
Colonial Men and Times	1	"
Historical Sketches of Plymouth, Pa. H. B. Wright	1	"

MAGAZINES PURCHASED.

American Anthropologist	1	"
American Association of Museums	1	"
American Journal of History	1	"
Genealogical Publications, Philadelphia, Pa.	1	"
Genealogy	1	"

Genealogist, The (English)	1	Vol.
Historical Register, Medford, Mass.	1	"
Lancaster County Historical Society Magazine, Pa.	1	"
Lebanon County, Pa., Historical Society Magazine ..	1	"
Maryland Historical Magazine	1	"
Mayflower Descendants, Magazine	1	"
N. Y. Genealogical and Biographical Record.....	1	"
Pennsylvania Federation of Historical Societies ..	1	"
Quarterly Journal Society of American Indians....	1	"
American Indian Magazine	1	"
Review of Reviews	1	"
Somerset County Historical Quarterly	1	"
South Carolina Historical and Genealogical Magazine	1	"
Tennessee Historical Magazine	1	"
Tyler's Historical Magazine (Wm. and Mary Mag.) Va.	1	"
Virginia Historical Magazine	1	"
World's Work	1	"

EXCHANGES (BOUND) DURING YEAR ENDING FEB. II, 1920.

Lewis Family, with Collateral Lines	1	Vol.
Smith Family, with Collateral Lines	1	"
Vital Records of Farmingdale, Maine.....	1	"
Corwin Genealogy	1	"
Bureau of American Ethnology, Bull; 20 parts, 1 and 2	1	"
N. Y. Historical Society, Historical Collections for 1917-1918	2	"
Early Historical Records of City and County of Albany, N. Y.	2	"
Annual Report (13th) of Educational Dept. State of N. Y., to July 31, 1916.....	1	"
D. A. R. Lineage Book	4	"
Kansas State Historical Society Collections, 1917-1919	2	"
Michigan Hist. Com., Political Parties in Michigan 1837-1860	1	"
The War with Germany, Government Report....	1	"
Iowa Authors and Their Work, Hist. Dept. State of Iowa	1	"
Yale University, Writings on American History, 1916	1	"

Vermont Historical Society, Capture of Ticonderoga	I	Vol.
Connecticut Historical Society, Collections.....	I	"
Montgomery County Historical Society, Collections	I	"
Records of the City of Kingston, N. Y. University, State of New York.....	I	"
Annual Report (1916) American Historical Ass'n	2	"
New Haven Colony Historical Society, Papers....	I	"
American Scenic and Historical Preservation Society Annual Report	I	"
Genealogical Society of Penn'a Annual Report....	I	"
Juniata Memories and Extinct Pennsylvania Ani- mals. Col. Henry W. Shoemaker	2	"
Life of Gen. Ely S. Parker (American Indian), Buffalo Historical Society	I	"
Wilkes-Barre Record, Daily (year).		
Wilkes-Barre Semi-Weekly (year).		
Times-Leader, Daily (year).		
Evening News, Wilkes-Barre (year).		
Pittston Gazette, Daily (year).		
Anne Arundel County, Md., 4 maps.		
North Mountain Mementoes, dedicated to Col. and Mrs. R. B. Ricketts. Col. Henry W. Shoemaker.		

EXCHANGES (UNBOUND) DURING THE YEAR.

American Philosophical Society, Philadelphia, Pa..	I	Vol.
Daughters of American Revolution. Magazine....	I	"
Georgia Historical Quarterly	I	"
Geographical Review, American Geographical Society, N. Y.	I	"
Historical and Philosophical Society of Ohio.....	I	"
Indiana Historical Publications	I	"
Iowa Journal of History and Politics.....	I	"
Michigan Historical Magazine	I	"
Minnesota Hist. Bull. Supplement 1917-1918....	I	"
Missouri Historical Review	I	"
National Genealogical Quarterly	I	"
New Jersey Historical Society	I	"
Newport Historical Society	I	"
New York Historical Society	I	"
Ohio Archeological and Historical Quarterly.....	I	"
Oregon Historical Society	I	"
Pennsylvania Magazine	I	"

Phillips' Exeter Academy Bulletin.....	1	Vol.
Rhode Island Historical Society	1	"
Southwestern Historical Quarterly	1	"
University of California Arch. and Ethenological Extract	1	"
University of Pennsylvania Museum Journal.....	1	"
Washington State Historical Quarterly	1	"
Western Pennsylvania Historical Society Magazine	1	"
Wisconsin Academy of Sciences	1	"
Wisconsin Archeologist	1	"
Wisconsin Magazine of History	1	"
Wyoming Historical Society Report, 1919 (Cheyenne)	1	"
Col. Henry W. Shoemaker, Story of Indian Steps, A Pennsylvania Indian Hunt, Pennsylvania Wild Cats, Pennsylvania's Grandest Cavern, The Black Moose in Pennsylvania, The Bald Eagle on the Susquehanna, and The Last of the War Gover- nors	7	"

The foregoing, together with other volumes not herein enumerated, make a total of 364 volumes.

CHRISTOPHER WREN,
Librarian and Corresponding Secretary.

**Report of Curator of Archeology for Year ending
February 11, 1920.**

*To the Officers and Members of The Wyoming Historical
and Geological Society, Wilkes-Barre, Pa.*

MUSEUM DEPARTMENT.

In the year 1919 the number of Museum specimens received was not as great as in some previous years, but this is, perhaps, balanced to considerable extent by the rarity and quality of a number of those received.

The Society is desirous of securing additions to its Museum collections of all kinds suitable, especially household articles, with their history well authenticated as being associated with our home locality; and also of the handiwork of the American Indian, within the water-shed of the main branches of the Susquehanna river, and all the streams which flow into it. This includes as large an area as we can well cover, and if we can make a complete showing of the region, it will be of more interest and value to the serious student than would be a collection of a larger field, which was not well identified as to the exact location from which the different specimens came or the conditions under which they were found.

As we already have a great number of ordinary arrow points, net sinkers, etc., and our space for display is becoming somewhat limited, we would like to secure such specimens as are rare, or scarce, or have some distinctive features about them, which will be of interest to the student of archeology. The following list includes most of our accessions received during the year:

MUSEUM ARTICLES RECEIVED DURING THE YEAR 1919.

Miscellaneous specimens (not Indian).

GIFTS.

- 1 Oil Portrait of Henry Colt, 1795-1850, son of first Sheriff of Luzerne county. Presented by Pierce Butler, of Carbondale, Pa.
- 1 Portrait of Benjamin Franklin (Photogravure), copied from the Duplessis painting, Paris, 1778. Presented by Franklin Fire Ins. Co.

- 2 Oil Portraits, one of Mrs. Elizabeth White (Pryor) Hillman, one of Herman Baker Hillman. Presented by Mrs. Arthur Hillman.
- 1 Pair of baby's first shoes, iron bound, Lancashire, England. Presented by Wm. Sugden.
- 3 Civil War relics of Capt. Alfred Darte, 4th Penn'a Cal- alry, 1 sword, 1 revolver, and 1 pair of epaulets.
- 5 Civil War relics of Private Luther C. Darte, 4th Penn'a Cavalry, 1 cavalry sabre, 1 revolver, 1 cavalry bitt, 1 U. S. belt Buckle and 1 carbine sword bayonet. Presented by Capt. George L. Darte.
- 1 4-inch conical shell, World War type, made at Berwick, not loaded. Presented by John W. Thomas, Beach Haven, Pa.
- Artificial flowers for bonnet, worn by ancestress of Mrs. Charles D. Foster several hundred years ago.
- 1 Curved knife used, instead of fork or spoon, in eating.
- 1 Epaulet, worn by an officer in Revolutionary War.
- 1 Crepe rosette, attached to shutter at time of burial of Lincoln.
- 1 Black neck stock, worn by Elijah Carman, more than one hundred years ago.
- 1 Small commemorative plate, from Hermitage, Nashville, Tenn.
- 1 Old English plate, over one hundred years old. 8 pieces. Presented by Mr. Charles D. Foster.
- 1 piece of wood from old battleship Constitution, Boston, 1909. Presented by R. Edward Smith.
- 1 Mounted black chipmunk; rare. Presented by Abram Nesbitt.
- 1 Composite statuette, Franklin-Washington (purchased). From Mrs. George A. Edwards.

INDIAN RELICS.

- 1 Beaver head pestle, rare for the region. Knot from Plymouth elm tree.
- 2 Pestles, 1 good Celt, 2 rare fossils from coal measures.
- 13 Large notched disks, 6-in. diameter, peculiar to this region. 20 specimens. From Oscar M. Lance. Presented by his sons, John H. and Oscar Lance.

Respectfully submitted,

CHRISTOPHER WREN,
Curator of Archeology.

February 11, 1920.

**Treasurer's Report of the Wyoming Historical and Geological
Society, Year ending December 31, 1919.**

RECEIPTS.

Balance on hand, January 1, 1919—Check Account	\$1402.03
Savings “	666.40
	<u>\$ 2,068.43</u>
Membership Dues	720.00
Income from Investments	4,329.82
Investment Account, Investments Paid, etc.....	7,561.26
Luzerne County Appropriation	1,000.00
Total Receipts	<u>\$15,679.51</u>

EXPENDITURES.

Salary Account	\$ 3,212.75
Incidental Account	176.00
Telephone	42.88
Insurance	141.00
Interest on Special Funds	1,064.50
Book Account	100.00
Sundry Expense	20.85
Investment Account, Investments made.....	7,027.06
Historiographer (O. J. Harvey).....	50.00
War Work Data of Luzerne County (Loan).....	800.00
Balance—Check Account	\$1,843.87
Savings “	1,200.60
	<u>3,044.47</u>
	<u>\$15,679.51</u>

Respectfully submitted,

C. W. LAYCOCK,
Treasurer.

BONDS.

	Par.
Pacific Gas & Electric Co. 6's.....	\$ 500.00
Scranton Gas & Water Company 5's.....	5,000.00
Wilkes-Barre Company 5's	1,500.00
Muncie & Union City Traction 5's.....	1,000.00
United Gas & Electric Co. 5's.....	1,000.00
New England Power Company 5's	5,000.00
City of Philadelphia Loan 4's.....	2,000.00
Columbia & Montour 5's	1,000.00
Lackawanna & Wyoming Valley Traction 5's	1,000.00
Webster Coal & Coke Company 5's.....	4,000.00
Canton & Akron Rwy. 5's.....	1,000.00
Minneapolis Gas Light Co. 5's.....	1,000.00
Columbus, Newark & Zanesville 5's	3,000.00
Chesapeake & Ohio Rwy. 4½'s.....	4,000.00
Spring Brook Water Supply Co. 5's.....	11,000.00
Plymouth Bridge Co. 5's	6,000.00
The Raeder Blankbook, Lithographing & Printing Co. 5's..	8,000.00
Eastern Wisconsin Railway & Light Co. 5's.....	1,000.00
Sheldon Axle Company 5's	2,000.00
Indianapolis, Newcastle & Eastern Traction 6's.....	1,000.00
Consolidated Telephone Co. 1st Mtg. 5's.....	1,000.00
South Carolina & Georgia Railway 1st Extended 5½'s....	4,000.00

STOCK.

Twenty (20) shares stock Hazard Mfg. Co.....	1,000.00
Six (6) shares American Telephone & Telegraph 8%....	600.00
	<hr/>
	\$66,600.00
9 Mortgages, 6%	\$13,300.00
1 Mortgage, 5½%	2,400.00
	<hr/>
	15,700.00
Total Investments at Par Value.....	<hr/>
	\$82,300.00

C. W. LAYCOCK,
Treasurer.

GENERAL FUNDS, DECEMBER 31, 1919.

1. George Slocum Bennett Fund.....	\$ 1,000.00
2. Hon. Charles Dorrance Foster Fund.....	1,000.00
3. Colonel Matthias Hollenback Fund.....	4,000.00
4. Dr. Charles F. Ingham Fund (minimum \$1,000).....	500.00
5. Rev. Jacob Johnson Fund.....	1,000.00
6. Dr. Frederick Charles Johnson Fund (minimum \$1,000).....	500.00
7. Fred Morgan Kirby Fund.....	1,000.00
8. Hon. Charles Miner (Historian) Fund.....	1,000.00
9. Sidney Roby Miner Fund	2,000.00
10. Abram Nesbitt Fund.....	11,000.00
11. James Nesbitt, Jr., Fund	4,000.00
12. Mary S. Nesbitt Fund.....	4,000.00
13. Mrs. Sarah Myers (Goodwin) Nesbitt Fund.....	2,000.00
14. Captain L. Denison Stearns Fund.....	1,000.00
15. Dr. Lewis H. Taylor Fund.....	1,000.00
16. Edward Welles Fund	1,000.00
17. Life Membership Fund.....	22,700.00
18. General Fund	4,300.00
	<hr/>
	\$63,000.00

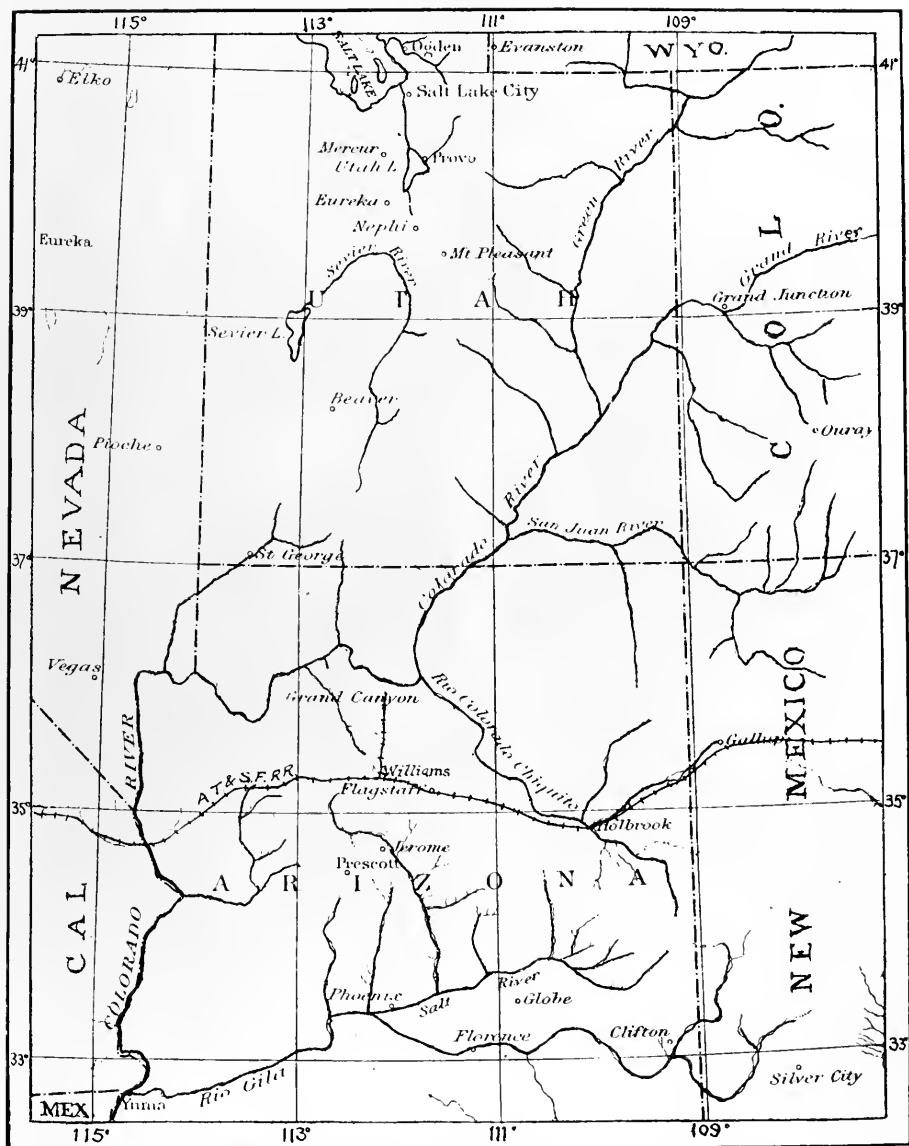
SPECIAL FUNDS.

-
- | | |
|--|-------------|
| 1. The Zebulon Butler Fund..... | \$ 1,000.00 |
| Given by descendants of Colonel Zebulon Butler for
Ethnological purposes. | |
| 2. The Coxe Family Fund..... | 10,000.00 |
| For Publication. | |
| 3. The Rev. Horace E. Hayden Fund..... | 1,500.00 |
| For Geological Lectures. | |
| 4. The Andrew Hunlock Binding Fund..... | 1,000.00 |
| 5. The Ralph D. Lacoe Fund..... | 1,000.00 |
| For Geology. | |
| 6. The Augustus C. Laning Fund..... | 1,000.00 |
| For Lectures; given by Mrs. George Cotton Smith in
memory of her father, who was a Vice President
of the Society. | |
| 7. The Charles A. Miner Fund..... | 1,000.00 |
| Given by his family for Geological purposes. | |
| 8. The Sheldon Reynolds Fund..... | 1,000.00 |
| Given by the family of Sheldon Reynolds, Esq.,
President, 1895, for a Memorial Library of Amer-
ican History. | |
| 9. The Hon. Stanley Woodward Fund..... | 1,000.00 |
| Created by his sons in honor of his having been a
founder and President of the Society. | |
| 10. The Harrison Wright Fund..... | 1,000.00 |
| A gift from his relatives in honor of his loyal attach-
ment to the Society, to create a Memorial Library
of English Heraldry. | |
| 11. The Joseph Swift Balch (1860-1864) Fund..... | 2,000.00 |
| Created by his brother, Edwin Swift Balch, for the
purchase of books (not Genealogical). | |

The above Funds are all to be kept intact, the interest only being available in carrying out the purposes for which they were created.

As our Society becomes more widely known and its exchanges with other similar Societies, for their publications *in pamphlet form*, become more numerous, it is very desirable that a larger binding fund be created so that these works may be made suitable for placing on our shelves and better fitted for being used and handled.

XXIV



(Fig. 1.) MAP SHOWING LOCATION OF THE GRAND CANYON.

THE GRAND CANYON AS AN OBJECT LESSON
IN GEOLOGY.BY N. H. DARTON, Geologist,
U. S. Geological Survey.*

(HAYDEN GEOLOGICAL LECTURE FUND.)

When persons interested in nature studies ask me where they can find the best object lesson in geology I always refer them to the Grand Canyon. In this beautiful open book of nature may be read many of the chapters of the geological story and most of them are so plainly revealed that they are obvious to any thoughtful person. Not only is the outlook wide, but the rocks are practically bare and the colors of the various strata are in strong contrast. The wonderfully picturesque features present infinite variety of forms, but their geologic relations are so clearly shown that their origin and development are apparent.

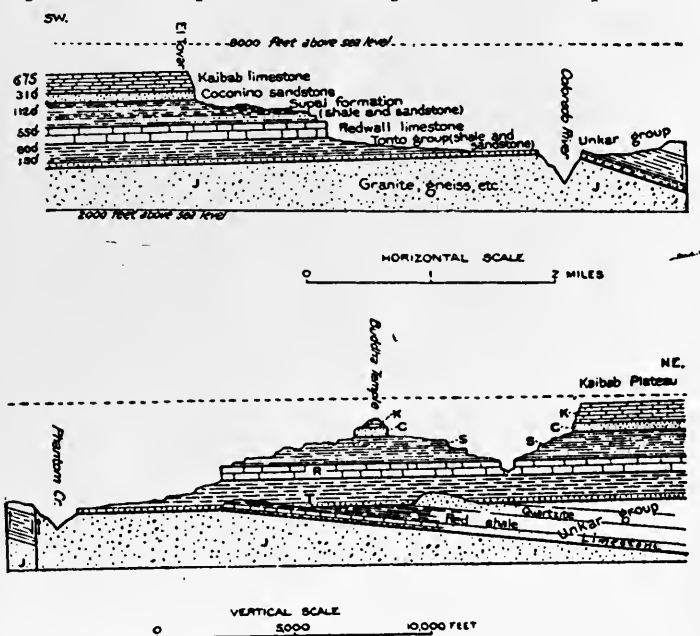
The first view from the rim is baffling because the great area in sight is filled with huge objects apparently in most intricate confusion. As the scene is studied strict order and a certain general simplicity of relations are evident. It is obvious that the broadest feature is a plateau of considerable elevation, deeply trenched by a river valley. One stands on the edge of this plateau and the farther edge of its forested surface is in plain sight ten miles or more away on the opposite side of the canyon. The river which cut the canyon is in view in places 5,000 feet or more below ones feet. It is the Colorado, which rises in the Rocky Mountains in Colorado, and carries a large volume of water to the Gulf of California. It will be seen, also, that the plateau is built up of thick layers of rocks of various colors, lying nearly horizontal and underlain by a mass of hard, dark

*Published with permission of the Director of the U. S. Geological Survey.

rocks (granite) and also in places by some tilted sandstone and shales mostly of red color. The succession of nearly horizontal rocks is about 3,600 feet thick, and the granite is trenched for a depth of 1,200 feet or more in the lower part of the canyon. The cross section, figure 2, shows the succession of rocks constituting the canyon walls with the thickness of the Paleozoic formations.

THE STRATIGRAPHIC SUCCESSION.

In the great succession of strata exposed in the walls of the Grand Canyon are representatives of a long period of geological time, extending from Archean, or the primeval earth crust at the bottom to the late carboniferous at the top. In this respect the section presented is comparable to



(Fig. 2.) Section across Grand Canyon between El Tovar Hotel through Buddha Temple to Kaibab Plateau.

the succession underlying the Wilkes-Barre region and many other parts of the coal districts of Pennsylvania excepting in the absence of Ordovician and Silurian strata and the presence of Devonian only in thin isolated masses. A very conspicuous difference, also, is, that in the Grand Canyon district the coal measures are represented by massive limestone (Redwall), a product of marine deposition. The formations constituting the upper and middle two-thirds of the canyon walls are as follows:

Paleozoic, in walls of Grand Canyon (beginning at brink of the canyon) :

	Feet
Limestone, light colored, partly cherty, mostly massive (Kaibab)	700
Sandstone, light gray, massive, cross-bedded (Coconino)	310
Sandstones and shales, all red (Supai formation)	120
Limestone, light blue-gray, massive, surface mostly stained red (Redwall)	550
Shale, with limestone and sandstone layers.....	} Tonto group 800
Sandstone, hard, dirty gray to buff	
(on granite).....	
	150

These formations are readily recognized by their color or character, as they are practically uniform in aspect and relative position from all points of view. The top limestone, which caps the great plateaus on both side of the canyon, has been removed in whole or in part from some of the promontories and buttes that project into the canyon, while the Coconino, Supai, or Redwall beds have been removed from the lower-lying features. The outcropping edge of the Coconino sandstone is marked by a distinct band of light-gray rock all along the canyon walls 700 to 800 feet below the top. The red beds of the Supai formation everywhere constitute the middle slopes of the canyon walls, usually presenting a great series of terrace-like steps of red sandstone. These steps are caused by the projection of harder layers of

sandstone. The Redwall limestone forms a conspicuous cliff at the foot of the Supai slopes. The rock is hard and massive, and its resistance to erosion makes it a prominent feature in the canyon. Its surface is stained red by wash and drippings from the overlying red shales.

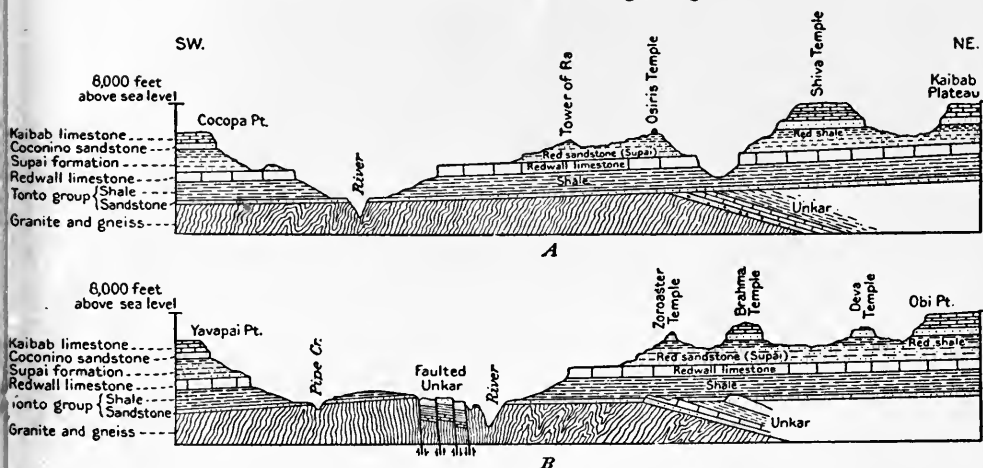
The Redwall and the overlying Supai, Coconino, and Kaibab beds represent the greater part of the carboniferous period.

The Tonto group, below the Redwall, here consists of 800 feet of shales, largely of greenish color, and a basal sandstone averaging 150 feet in thickness. This group is very much older than the Redwall, and though at their contact the beds of the one are practically parallel to the beds of the other, there is a hiatus here which represents a very considerable portion of geologic time not represented by rocks in this region, but recorded by many thousand feet of rocks in other portions of North America and in other countries. The shales make a long slope, interrupted by some subordinate ledges of limestone and sandstone, descending to a pronounced shelf of the sandstone, called the Tonto Platform. This slope and the wide shelf at its foot are both very characteristic and easily recognized features extending along the lower slopes of the Grand Canyon.

For many miles this shelf of sandstone of the Tonto group is cut through by the steep inner gorge (shown in pls. 4 and 6), which descends to the river, 1,000 feet or more below, and exposes the underlying granite and gneiss in very dark, rugged ledges. These latter rocks are part of the old earth crust, on which has been deposited thick beds of sand, clay, and other materials. In a wide area the basal sandstone of the Tonto is the base of this sedimentary succession, lying directly on the smooth surface of this schist and granite, but in some places, notably in the broad part of the canyon northeast of Grandview, in Shinumo basin, in part of Bright Angel Canyon, in Ottoman and Hindu amphitheaters, and in the ridges extending northwest and south-

east from a point near the mouth of Bright Angel Creek, other rocks lie between the granite and the Tonto rocks. These are known as Grand Canyon series, comprising the Unkar and Chuar groups, all named from localities in the canyon where they are well exposed. Their thickness is 12,000 feet or more and the beds dip at moderately steep angles. Their surface has also been worn off to a rolling plain, with many local hills on which lie the shales of the Tonto group. The Unkar group, which is the one in sight from most points of view, consists of a succession of basal conglomerates, dark limestone in thick beds, bright-red shales, heavy quartzites, and brown sandstones. These rocks have been named, in ascending order, Hotauta conglomerate, Bass limestone, Hakatai shale, Shinumo quartzite and Dox sandstone. This succession of rocks is plainly visible in Bright Angel Canyon and in the ridge culminating in Cheops Pyramid, also in a wide area in the lower part of the canyon in the region northeast of Grand View.

The principal relations of the formation near El Tovar are shown in the two cross-sections in figure 3.



(Fig. 3.) Section across Grand Canyon, Arizona, looking west. A, from Cocopa Point to Kaibab Plateau at Tyo Point; B, from Gavapai Point to Kaibab Plateau at Obi Point.

GEOLOGIC HISTORY.

The geologic history recorded in the rocks in the Grand Canyon covers a large part of the Algonkian and Paleozoic periods, while the excavation of the canyon is a most interesting chapter of the quaternary history. Only a brief review of the more prominent events can be outlined here.

The granite and gneiss at the bottom of the canyon are part of the oldest group of rocks constituting the earth's crust. The gneiss, which is the older, is in nearly vertical layers. It has been subjected to great heat and pressure, and into it the granite was forced in a molten state. Later the surface of these rocks was eroded to a plain by running water.

The next event of which there is evidence was the submergence of this plain and the deposition in water, of varying depth, of a thick series of sediments now represented by the 12,000 feet or more of sandstone, limestone, and shale constituting the Unkar and Chuar groups. These strata are believed to represent the Algonkian period, and earliest in which remains of life have been found. Several million years were required for the accumulation of these sediments. The materials of the limestone were laid down in the sea, those of the sandstone on beaches and along streams, and those of the shale mostly in estuaries.

Next there was extensive uplifting of the earth's crust, with tilting and faulting of the rocks. Erosion then swept away a large amount of the Unkar and Chuar sediments, and over wide areas they were all removed. In figure 4 are shown some conditions of this sequence of events, as indicated by the relations of the rocks on the north side of the river opposite El Tovar.

When the surface was reduced to a rolling plain, with a few hills rising in places, there was another submergence by the sea, which deposited the sediments of the Tonto group. First the sand was deposited over the smooth gran-

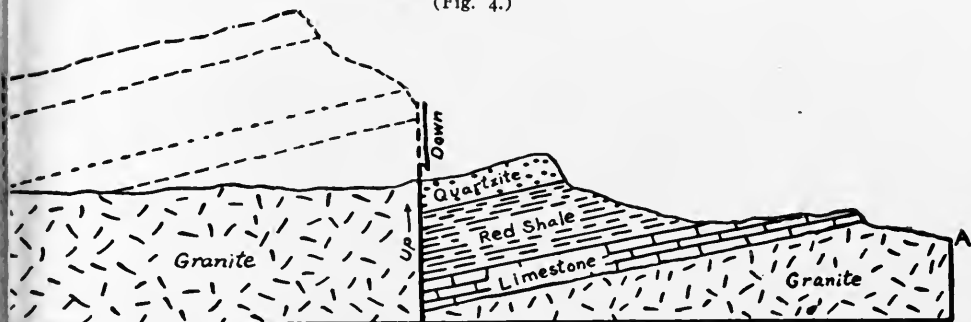


(Plate 2.) North side of Grand Canyon, opposite El Tovar Hotel—Kaibab Plateau in distance. G, granite, etc.; U, red shale and limestone (Unkar group); T, Tonto platform; Sh, Bright Angel shale of Tonto group lying on quartzite of Unkar group; R, Redwall limestone; S, Supai formation (red sandstone and shale); C, Coconino sandstone; K, Kaibab limestone. The Redwall butte in center is Cheops Pyramid; beyond are Buddha and Manu temples.

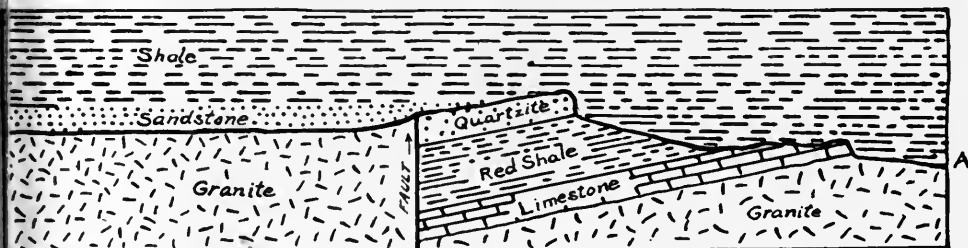


ite surface (as shown by the heavy line in figure 4). With deepening waters or diminishing force of the currents, the clay now represented by the shale of the Tonto group was laid down, soon burying the islands of Unkar and Chuar rocks and accumulating to a thickness of 800 feet or more,

(Fig. 4.)



1. Ideal section of faulted block of Unkar rocks in Grand Canyon. The uplifted portion shown by broken lines has been eroded away, leaving the profile A A.



2. Section showing sands and shales of the Tonto group deposited on the eroded plane A A on Unkar rocks and granite.

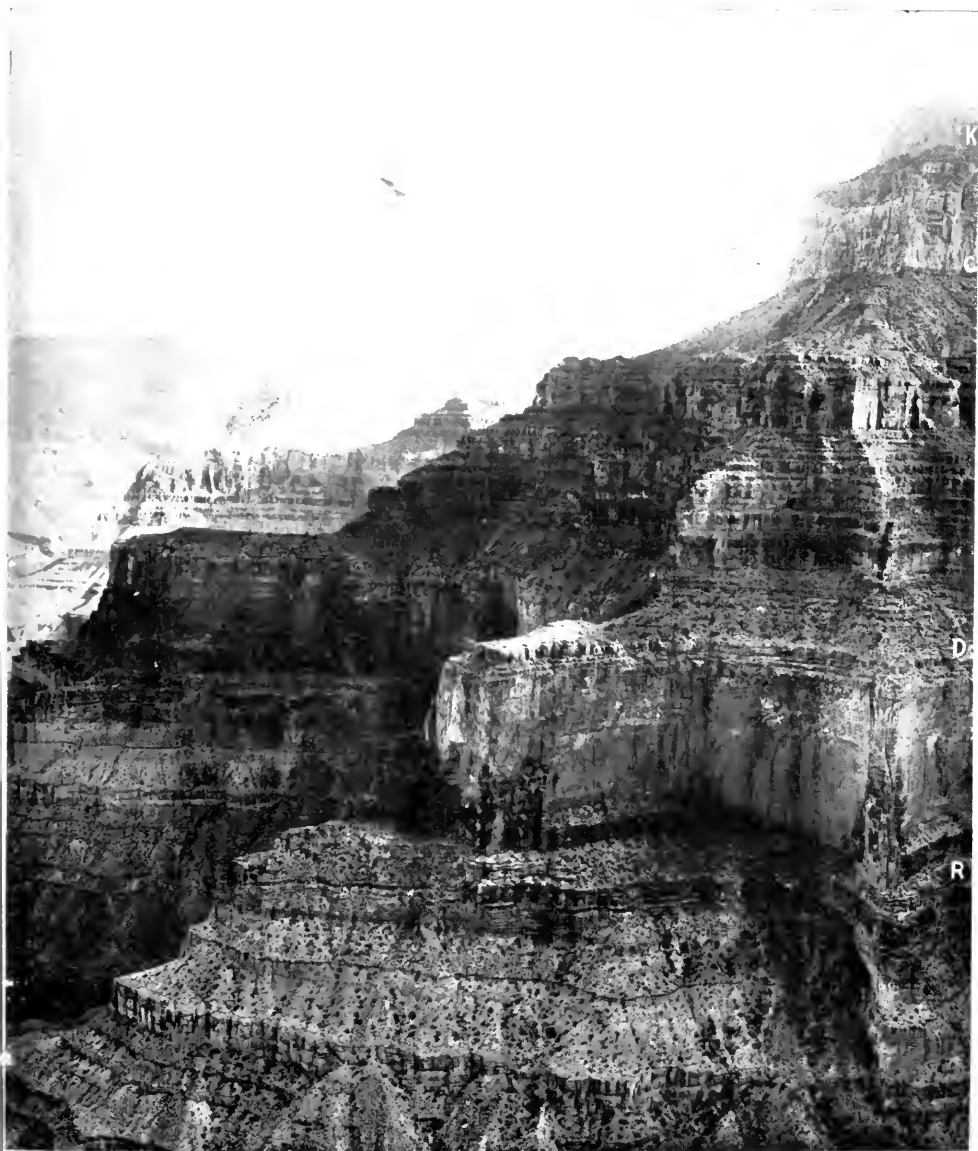
including some limestone toward the end of this epoch. Remains of life in these rocks indicate that they represent a portion of later Cambrian time. The conditions in this region during the long time of the Ordovician, Silurian and Devonian periods are not known, excepting a small amount of the Devonian rocks found at a few places their representatives are absent in the canyon region. The sea may

have laid down here, during those periods, deposits of great thickness, which were later uplifted into land areas and removed by streams and other agents of erosion.

During most of the carboniferous time, the period characterized in Pennsylvania and some other parts of the world by the accumulation of the older coal-bearing deposits, the entire region was submerged by the sea, which deposited calcium carbonate in nearly pure condition, now represented by 500 feet or more of the Redwall limestone. Much calcium is carried into the sea by streams, and its separation is effected by organisms of various kinds as well as by chemical reactions not connected with life. This deep submergence was succeeded by shallow water in which the red muds and sands now represented by the Supai formation were laid down to a thickness of a thousand feet or more. Where these sediments came from and the conditions under which they were deposited are not known, but undoubtedly they were derived from land surfaces not far away, where granites, limestones, and other rocks were decomposing and yielding red muddy sediments to streams flowing out across the area of Supai deposition.

The change to the deposition of the Coconino beds was a very decided one, for the coarse gray sandstone of this formation lies directly on the soft red shale at the top of the Supai formation. The sand of which it is formed was laid down on beaches and in places where there were strong currents, for the grains are clean and light colored and the extensive cross-bedding (see pl. 9) indicates that there were vigorous currents in various directions. Such a deposit usually accumulates rapidly, so probably the 300 feet of sandstone represents a relatively short space of geologic time.

This epoch was terminated abruptly by deeper submergence due to a long-continued subsidence of the region, and in the extensive sea thus formed was laid down the thick deposit of calcium carbonate now represented by the Kaibab

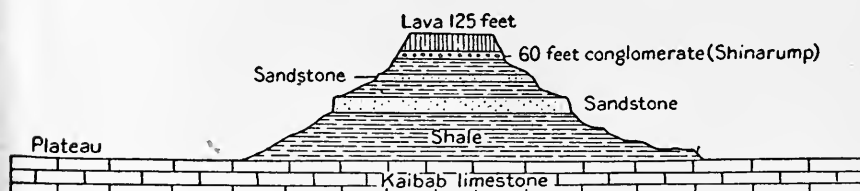


(Plate 3.) Looking east along south wall of Grand Canyon, east of Grand View Point. K, Kaibab limestone at top of plateau; C, base of gray sandstone (Coconino) on 1,100 feet of red shale and red sandstone (Supai), extending to top of Redwall limestone at D; R, top of Tonto group.



limestone. The numerous shells in this deposit are those of animals that lived in the sea. The water probably was moderately deep, and it is believed that the limy sediments accumulated very slowly during a long period of gradual subsidence. The time required for the accumulation of 700 feet of sediments of this sort must have been very great, surely several million years; and it continued through a large part of the later portion of the carboniferous period.

Upon the Kaibab limestone, which constitutes the present surface of the high plateau, there were deposited many thousand feet of sandstones and other rocks through late Permian, Mesozoic, and Cenozoic time. These rocks originally covered the present plateau area, but were in greater part removed by erosion before the beginning of the excavation of the canyon. Remnants of them may be seen in Red Butte, not far south of El Tovar (see figure 5); in Cedar Mountain, far to the east on the Coconino Plateau; and in the great line of the Vermilion Cliffs, far to the north, beyond the Kaibab Plateau. Their removal required several million years, and most of it was completed before the excavation of the present canyon was begun.



(Fig. 5.) Section through Red Butte, a lava-capped remnant of some of the beds which formerly covered the great plateau.

The time required for the excavation of the Grand Canyon in the slowly rising plateau was only a very small fraction of the time represented by the great accumulation of sediments in the 3,600 feet of strata in the canyon walls. And these strata also underlie not only the Arizona plateau but also a large part of the continent. An inch of limestone

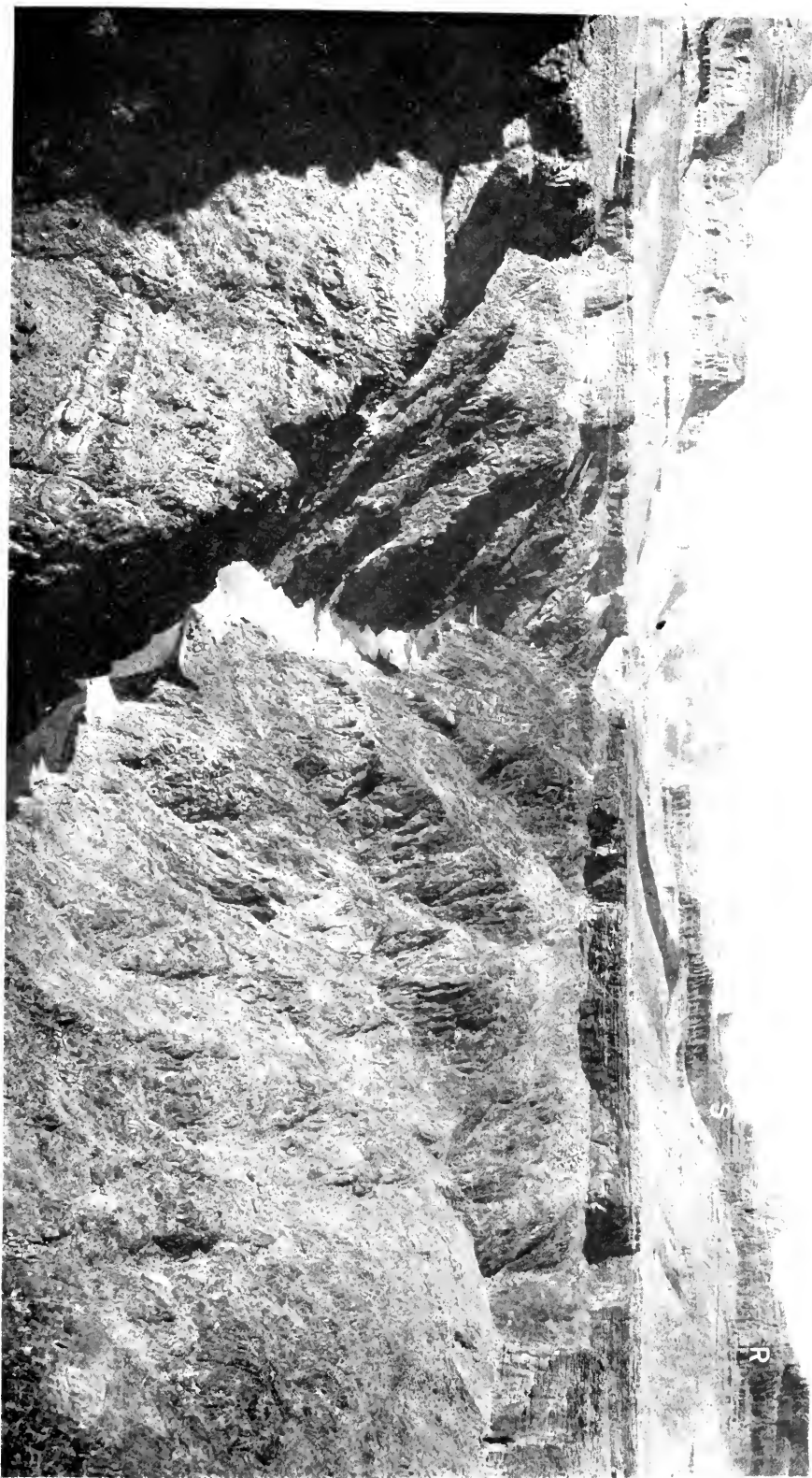
required many years for its deposition, the shale was mud brought from distant hills by turbid streams and the sands were deposited by streams or spread on beaches far from their original sources in the rocky ledges of the higher lands. It should also be noted that in the canyon section are lacking rocks which represent a large part of middle Paleozoic time in other regions.

A very long time was also required for the deposition of 12,000 feet of the Unkar and Chuar groups and the planation of the granite surface on which they lie. Probably this all required as much time as is represented by the Paleozoic rocks in the upper and middle canyon slopes. Finally a great period of time elapsed before all this became represented by the granite and associated rocks exposed in the inner gorge in the bottom of the canyon. These crystalline rocks underlie the plateau and come to the surface in many mountains in the west.

HISTORY OF THE CANYON.

There is not the slightest question as to the origin of the Grand Canyon, for geologists are agreed that it has been eroded by the action of running water, mainly by the great river which now flows in its bottom. The action has been long continued and the deepening and widening process is now river which now flows in its bottom. The action has been long continued and the deepening and widening process is now in active operation. As geological results go, the canyon is very young and much of the excavation has been accomplished in the last few thousand decades. The first stages of excavation are not clearly indicated, but back in late Tertiary or early Quaternary times a stream similar to the present Colorado River was flowing south and west in essentially the present course of that stream but through a very wide valley of moderate declivity. The bottom of this valley was not far above the surface of the present great limestone plateau, but the land as a whole was not far above sea level and the principal erosion was by side streams and at times

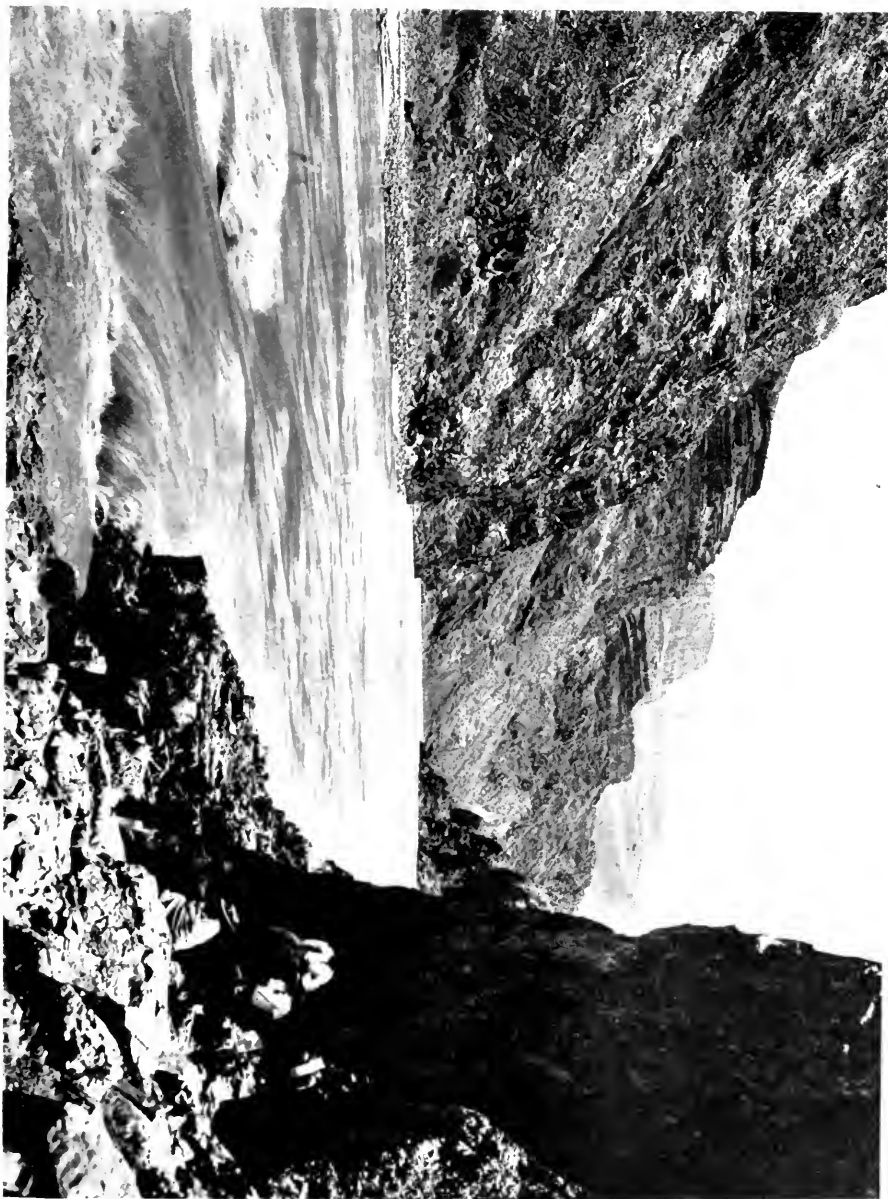
(Plate 4.) The granite gorge at bottom of Grand Canyon. Looking west from a point northwest of Grand View. Depth about 1,000 feet. Shelf of basalt sandstone of Tonto on sides; shale above. R. Redwall limestone; N. Supai formation (red sandstone and shale). Shiva Temple in the middle distance. Zoroaster Temple to right.



of freshet. Canyon cutting was initiated by a widespread uplift of the plateau country, an upward movement doubtless extending from the Rocky Mountains to the Pacific. Doubtless the uplift was gradual and of the nature of a ground tilting with local doming and considerable faulting, the latter process breaking the earth's crust into great blocks. This uplift increased the declivity of the river and its branches and with increased declivity came increased erosive power of its immediate bed, and, therefore, the river began cutting a narrow valley or canyon, the beginning of the present great gorge. As uplift progressed the river cut downward and the adjoining plateau, with its hard sheathing of limestone became more and more elevated until now the river bottom is 5,000 feet or more below the plateau surface. Downward cutting of the immediate bed of the river and its tributaries has been the predominating feature but naturally the upper canyon walls have been cut back into slopes and steps by local erosive agencies which are exceedingly effective in places where declivity is so great. The softer beds have been undermined so that great masses of overlying harder beds fall and there is a rapid movement of talus down the slopes, especially when aided by the rapidly running water of local rainfalls. Much rock is shattered and broken off by the great change of temperature from hot midday sun to the evening chill and by the winter's frosts. Wind-blown sand cuts the cliffs to an appreciable degree and many of the minor details of form are due to this agent. Considerable of the limestone is also dissolved by rain water and by this means undermining of the cliffs is effected so that blocks fall off onto the slopes below there to disintegrate into smaller masses. All the debris eventually works down the steep slopes into the great river and in time is carried down the valley. The deepening and widening will continue to progress, for the gorge must be more than 2,000 feet deeper than it now is before the river reaches sea level or a grade so low that it could no longer move the debris.

SOME SPECIAL LESSONS.

Many varieties of geological features and processes are illustrated in the Grand Canyon, and some of the details of stratigraphy, structure and physiography have not yet been worked out. One of the most striking features is the close relation between rock texture and topographic form, notably in the fact that the hard massive rocks give rise to cliffs, while the slopes are developed on the softer beds. The cliffs of Coconino sandstone and Redwall limestone shown in all the views are splendid examples of the former, and the slopes of the soft shale of the Tonto group are characteristic of the softer rocks. Owing also to the softness of this shale it has been stripped off the sandstone of Tonto Platform for some width all along the canyon so that the sandstone constitutes a wide shelf, with slopes of shale on the one side and terminating in a cliff where the sandstone is cut through by the inner canyon and its branches. The red beds of the Supai formation present an alternation of hard sandstones and soft shales which accordingly present a succession of steps and slopes which are highly characteristic of the formation throughout the canyon. The hard ledge of Redwall limestone forms a shelf in many parts of the canyon where the Supai beds are eroded back, notably in the long spurs north of Grand View, while Cheops Pyramid and other similar outlying masses of Redwall limestone also illustrate this feature. The Kaibab limestone contains some softer members and shaly strata so that at most places the cliffs are interrupted by slopes and other irregularities. The Unkar and Chuar groups present a succession of thick masses of shale, limestone and quartzite, the two latter causing cliffs of considerable prominence. The granite and gneiss of the lower gorge in the bottom of the canyon are so hard that they present steep walls, but owing to their irregular structure, with jointing and schistosity, these walls are jagged and pinnacled in strong contrast to the sheer cliffs of the homogeneous massive Redwall limestone and Coconino sandstone. A very conspicuous feature is the



(Plate 5a.) On the bank of the Colorado river, near foot of Bright Angel Trail. Looking east. Granite walls in foreground. Cliffs of quartzite of Unkar group in middleground. Zoroaster Temple an outlier of Coconino sandstone in distance.



change of configuration in the lower gorge north of Grand View Point, when the hard granite sinks beneath the surface and the valley widens in the softer rocks of the Unkar group, especially where the thick body of red shales are crossed in the "big bend". (See plate 8.)

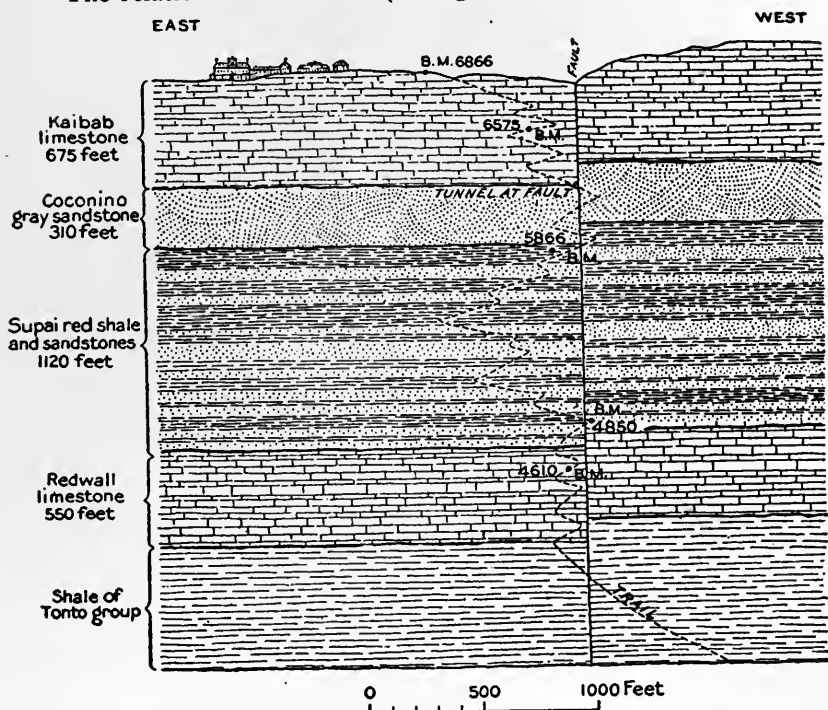
The solvent effect of water on limestone is illustrated by many caves and overhanging cliffs of the Kaibab and Red-wall limestones, although the frequent alcoves in the latter appear to be due to spalling off of the rock as the underlying shales and limestones at top of Tonto group are eroded. Much of the limestone surface, especially flat planes and those on the surface of the plateau are pitted by solution of the limestone.

It will be noted that the northern rim of the canyon is deeply trenched by valleys of considerable length, while the valleys on the south side are much shorter and steeper. This is due to the fact that the plateau slopes to the south and drainage on the south rim flows south in valleys with moderate grade, consequently with low erosion, while on the north side, which is more than 1,000 feet higher than the south rim, there is a wide catchment area for precipitation. The greater elevation on the north side not only gives increased rainfall but greater declivity, which means more cutting power.

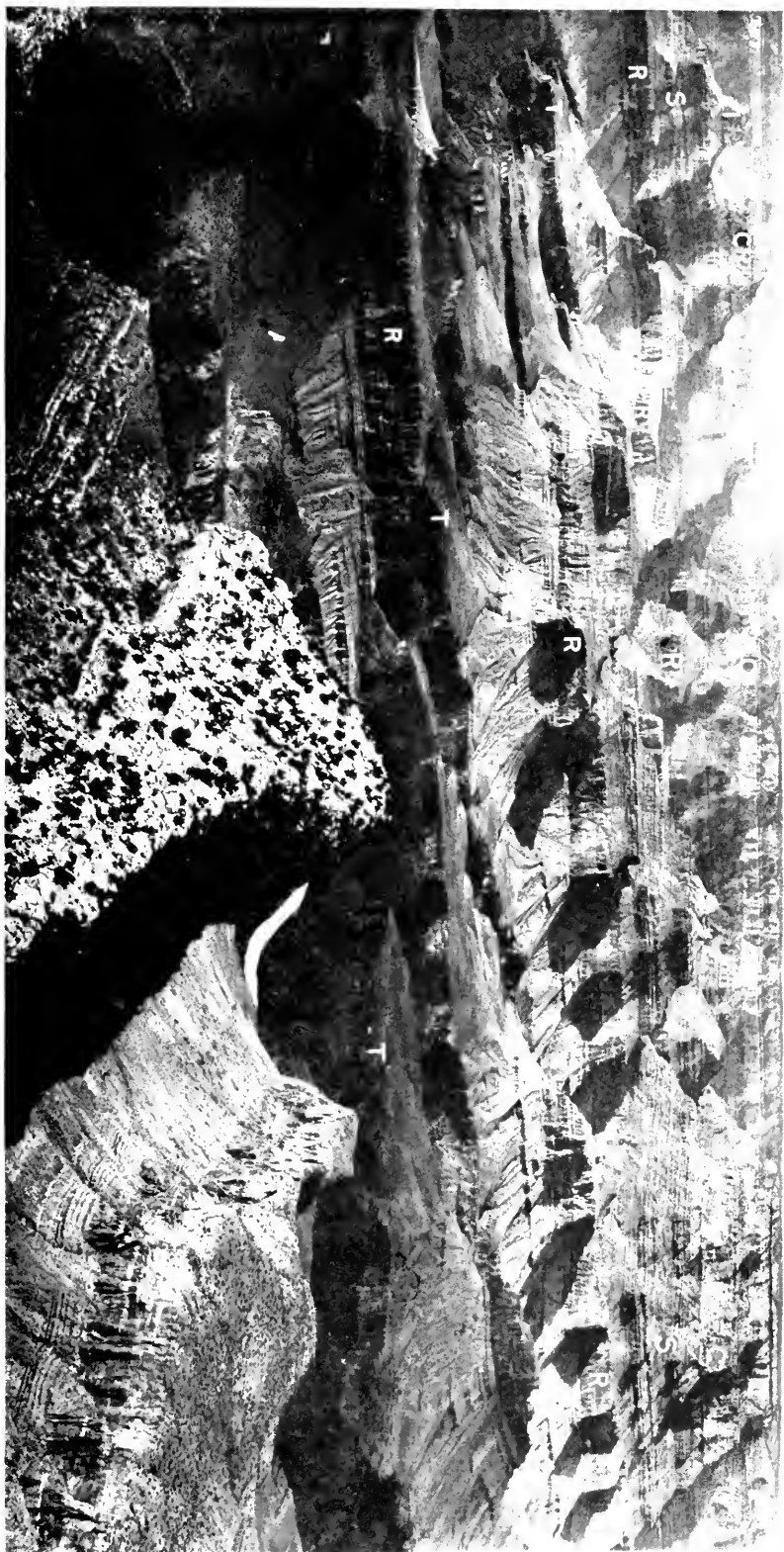
While the Paleozoic rocks in the canyon appear to lie horizontal, they slope considerably. In the first place there is a broad flat topped dome, of which the summit is not far west of El Tovar, and the axis of the dome rises to the north at the rate of about 100 feet to the mile. It is due to this rise that the surface of the limestone, capping the plateau, is 1,000 feet higher on the north side, or Kaibab plateau, than it is on the south rim. Local flexures are not frequent, but in the cliffs northwest of Grand View Point an upward bend of the beds is well exposed. The Unkar rocks opposite the mouth of Bright Angel Creek exhibit considerable strong flexing as well as faulting.

Faulting and some of its effects are well shown in the

Canyon, for the rocks are traversed by many small faults and occasional large ones, some of part Paleozoic age and some planed off and buried beneath the Paleozoic sediments. One of the most noticeable faults near El Tovar extends along the shallow valley followed by the railroad for the last few miles and cuts the canyon wall at the place where the Bright Angel trail descends. In fact, it is owing to the fault offsetting the beds and causing considerable shattering of the rocks and consequent increased talus that the trail has been developed here. The amount of the displacement is not great, only 140 feet, and the uplift is on the west side. The relations of this fault (see figure 6) are well shown on



(Fig. 6.) The rocks on the trail descending from El Tovar to the Indian Gardens shows relations of the fault. B. M. refers to bench marks of U. S. Geological Survey showing elevations.



(Plate 6.) Looking northwest across Grand Canyon from Grand View Point. Kaibab Plateau in distance. T, Zoroaster Temple; S, Angel Gate; C, Coconino sandstone; R, Supai red beds; R, Redwall limestone; T, Tonto platform.



the Bright Angel trail descending from El Tovar, notably at a small tunnel through which the trail passes at the top of the Coconino sandstone. Here the actual fault plane is exposed, filled with one-foot vein of calcium carbonate. It is also well shown farther down the trail breaking the cliff of Redwall limestone at "Jacob's Ladder", and its presence has greatly facilitated the making of a trail down the deep cliffs of the massive limestone. Faults in the Unkar beds, as shown in sections (figure 3) are clearly exposed opposite the mouth of Bright Angel Creek. That these faults occurred prior to the Tonto time is proven by the fact that the basal sandstone of the Tonto was deposited over them and after the uplifted side had been eroded down to a relatively smooth plain.

FEATURES ILLUSTRATED BY THE PHOTOGRAPHS

Plates 2 to 9 are reproduced from photographs taken by Carkhuff for the U. S. Geological Survey. Plate 10 is from a view by Putnam and Valentine. These views illustrate features visible from El Tovar and Grand View, the points visited by most persons who go to the canyon.

Plate 2. North wall and slopes of the canyon opposite El Tovar hotel, looking somewhat west of north. The view is telescopic, which gives the features the appearance of being much nearer to the spectator than they really are. The vertical element is more than 5,000 feet. The geological section presented is complete with the granite gorge at base, more than 1,000 feet deep, to the Kaibab limestone capping the Kaibab plateau in the distance. Next below this limestone is the prominent gray band marking the great cliff of the Coconino sandstone everywhere about 300 feet high. Standing out a short distance from the plateau are three isolated buttes capped by the limestone and disconnected from the main body north by erosion. They are Shiva, Buddha and Manu temples. The wide area of terraced slopes of Supai formation, bright red in color, are conspicuous, descending to the steep cliff of Redwall limestone about 500 feet high, which crosses the upper middleground of the view. An outlying mass of the formation from which overlying Supai has practically all been removed appears in the

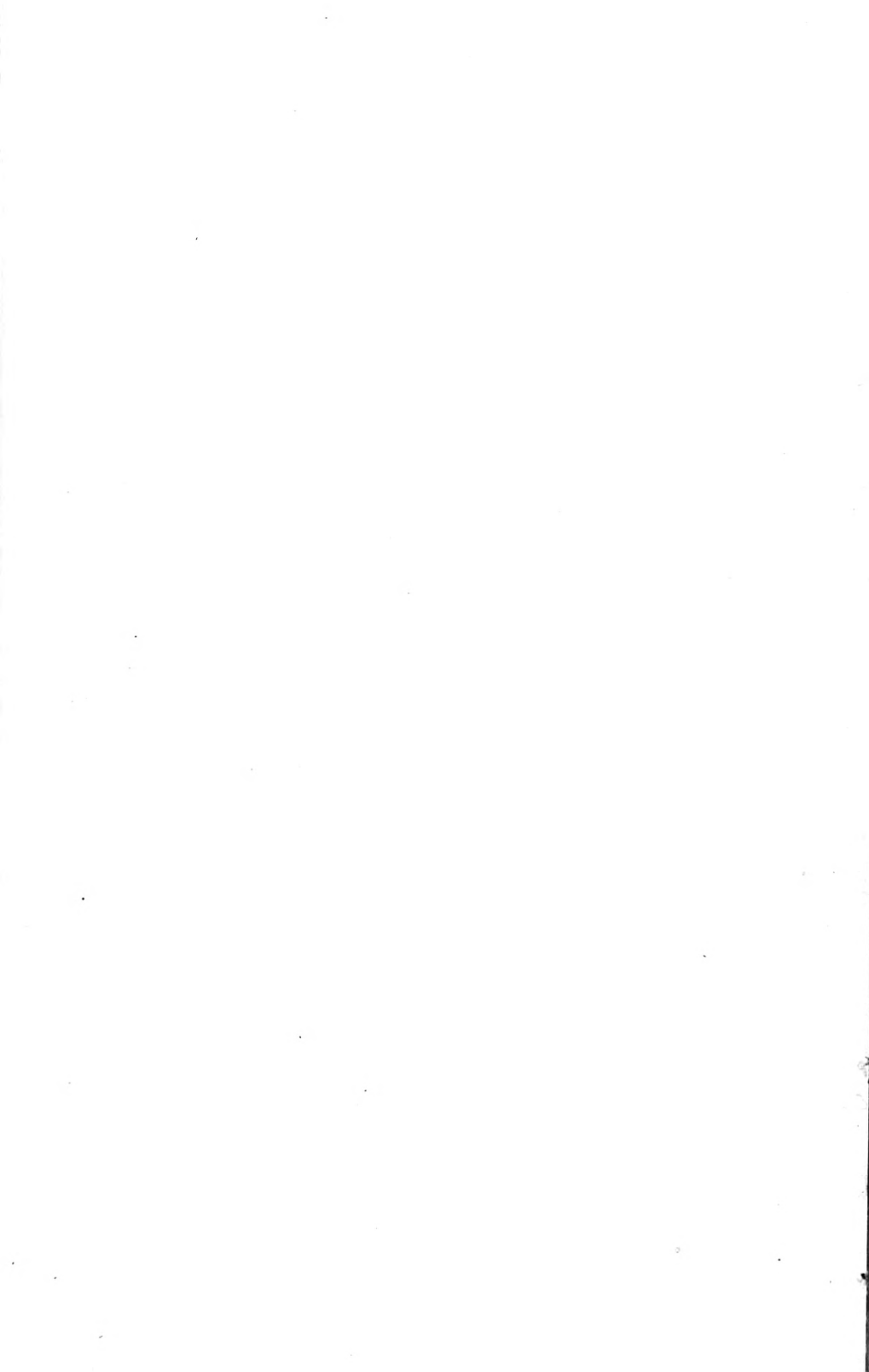
middle of the view; it is Cheops Pyramid (32 in plate 1). The long slopes of the shales below the Redwall limestones carry the eye down to a wedge of Unkar rocks (for structural relations see section in figure 2) marked at U. U. by a cliff of the upper quartzite, which is of drab brown red color. Somewhat nearer in the view there is a platform of sandstone of Tonto group capping the granite. This sandstone is absent on the far side of the cliffs of quartzite in the Unkar group, because there the higher shale of the Tonto group lies directly on the quartzite. The hard ledges of this rock rose as an island in the water body in which the shale was deposited (see section 1, figures 2 and 4). A small amount of the shale remains on the Tonto platform in the middle of the view and the full thickness of that formation exists on the south side of the river at the foot of the slope from which the view was taken.

Plate 3. Looking along the south wall of the Grand Canyon east of Grand View Point shows in close view all the formations from Kaibab limestone nearly to the Tonto platform. The great cliffs of Coconino sandstone and Redwall limestone are highly conspicuous features and the harder beds in the middle and lower part of the Supai formation give rise to a close succession of high steps. The thick beds of red shale at top and bottom cause slopes. The very sharp separation of Coconino sandstone on top of the upper red shale is clearly shown. Hard beds of sandstone and limestone in the Tonto group cause cliffs of considerable prominence. In the distance is the Coconino plateau curving to the south beyond Zuni Point.

Plate 4 shows principally the character of the granite gorge at the bottom of the Grand Canyon, which extends from a point opposite Grand View far down the river. Opposite El Tavor it is 1,200 feet deep; in the view it is about 1,000 feet. The walls are very steep and irregular. On either side is the cap of sandstone, the Tonto plateau, extending back to the shale slopes which rise several hundred feet to the cliff of Redwall limestone. Shiva Temple, in the middle distance, is here seen in cross section. It consists of a thick pile of nearly horizontal strata from Redwall limestone on its lower slope to the cap of Kaibab limestone. The gray band near the top is the 300-foot cliff of Coconino sandstone. This butte is detached from the main Kaibab

(Plate 7-.) Looking east across Grand Canyon from Zuni Point east of Grand View Point to Painted Desert plateau. The lower slopes are red shales, limestones and sandstones on T'hear group, dipping east and overlain unconformably by sandstone and shale of Torro group at T: R. Redwall limestone: S, red beds of Sunai formation: K; Kaibab limestone.





plateau by erosion, which first cut two deep valleys, forming a long peninsula and then cutting into the upper part of this in such a way as to remove the connecting part of Kaibab limestone, Coconino sandstone and upper beds of Supai formation. Zoroaster Temple, to right of the view, is an outlier of Coconino sandstone which has been cut off in the same manner and practically all of the overlying Kaibab limestone removed. On the extreme left of the view is the edge of the Coconino plateau capped by Kaibab limestone (Shoshoni Point).

Plate 5a. The Colorado River at this place is a stream about 300 feet wide, 30 feet deep, and with volume of 20,000 cubic feet a minute at times of ordinary flow. Its average fall is 12 feet to the mile, but locally there are strong rapids, due mostly to masses of detritus brought out of side canyon. The granite gorge at this place is about 1,200 feet deep and the dark rugged walls are especially steep. In the middle ground are cliffs of limestone at base of Unkar group here lying on the granite, as shown in the section, figure 2. In distance is Zoroaster Temple, an outlier of Coconino sandstone. (See also plate 4.)

Plate 5b. Looking up north, the canyon of Bright Angel Creek from Yavapai Point (21, plate 1) just east of El Tovar Hotel. Low down in foreground is the granite gorge and the lower course of Bright Angel Creek is also in this rock. On the granite to left of center of view is a wedge-shaped mass of tilted rocks of the Unkar group, the cliff of dark brownish quartzite being especially conspicuous. Some of the rocks of this group appear farther up the canyon of Bright Angel Creek. T, is the slope of shale in the Tonto group, and R, the great cliffs of Redwall limestone surmounted by long steps-like slopes of Supai red beds. The Tonto platform appears to right of the view, but it is absent west of the creek where the shale lies directly in the Unkar group. (Plate omitted.)

Plate 6. View of Grand Canyon from Grand View Point shows all the features from the river in the granite gorge to south rim of the canyon at edge of Kaibab plateau, a vertical range of more than 5,000 feet. The relations appear to be complex but close inspection will show that they are especially regular. The beds appear to be horizontal, but they slope to the southwest. The Tonto platform is extensively

developed but is deeply trenched by side canyons, and these also cut the Redwall cliff into many deep re-entrants, with precipitous sided intervening ridges and cusps. Zoroaster Temple is at (33, plate 1) with Brahma Temple (24, plate 1) and Deva Temple (9, plate 1) to the right, the two latter capped by remnants of a lower member of the Kaibab limestone. Angels Gate (19, plate 1) consists of remnants of Coconino sandstone. To the right of it is the wide outlier of the plateau known as Wotan's Throne. (4, plate 1).

Plate 7. Looking east from Zuni Point (17, plate 1) one has a wonderful vista, differing in many important respects from the view near El Tovar, and those looking north or west from Grand View. In the foreground is a wide expanse of Unkar rocks, in which the canyon widens greatly, for the granite sinks below the river a short way west. The river comes from the north out of the "Marble Canyon" and here turns west, making the "big bend". In the distance is an extension of the Coconino plateau of Kaibab limestone underlying the Painted Desert. It is deeply trenched by the Little Colorado, which empties to right of the view (34, plate 1). Far in the distance are buttes of formations overlying the Kaibab limestone but which originally extended all over the area now occupied by the canyon and its adjoining plateau surface. The Unkar rocks are recognized in the view by their tilt to the east. They include much red shale and a thick body of old igneous rock. The shale of the Tonto group is conspicuous on the lower slopes, lying on an irregular surface of the Unkar rocks. The Redwall cliff is well marked, and also the characteristic features of supai, Coconino, and Kaibab formations, as in other views. The high cliff to the left is Cape Final (2, plate 1) a part of the Kaibab plateau. Jupiter Temple (12) and Venus Temple (14) outliers of Coconino and Supai rocks, rise on the ridge extending east from foot of Cape Final. Farther back are Gunther's Castle and Siegfried Pyre, similar outliers, from the eastern margin of the Kaibab plateau.

Plate 8. The trip down Bright Angel Trail gives many intimate views of the various formations. This view from the Tonto platform shows the shales, the Redwall cliff, 500 feet high, and an outlying butte of Supai formation, consisting of great red steps of sandstone with shale slope.

Plate 9. Another detail seen from the trail is a near view



(Plate 8.) The rocks on lower part of Bright Angel Trail. T, top of sandstone Tonto platform; Sh, shale of Tonto Group; R. R., the cliff of Redwall limestone overlain by red sandstone (Supai formation.)

of the cliff of Coconino sandstone, which begins at base of the sloping steps of Kaibab limestone and extends to the red shale at the top of the Supai formation. (Plate omitted, see G G G, plate 2, and description with same plate.)

Plate 10. Shows the upper cliffs where the Bright Angel trail descends and gives a good idea of the great thickness of Kaibab limestone, 500 feet or more, which appears small in other views because of the distance. The relations of the great cliff of Coconino sandstone are shown (C-C) with top of Supai formation below.

BIBLIOGRAPHY.

Geological investigation in the Grand Canyon was begun by J. W. Newberry, geologist of the Ives exploring expedition in 1857-'58 (1), and although he visited only a small section of the area he obtained a clear idea of some of the broader relations.

(1) Report upon the Colorado River of the West. Senate Doc. 36th Congress, 1st Session, Part III. Washington, 1861.

J. W. Powell (2) in his wonderful boat trip through the entire length of the canyon in 1869, and subsequent work, added greatly to the knowledge of the region and afforded many details of geological structure.

(2) Exploration of the Colorado River of the West and its Tributaries, explored in 1869-1872, under direction of the Secretary of the Smithsonian Institution, Washington, 1875, and Canyons of the Colorado, Meadville, Pa., 1895.

G. K. Gilbert (3) in 1872 examined the lower part of the canyon as far as the mouth of Diamond Creek and gave an explicit account of the stratigraphy and of many structural features. He also set forth many principles of degradation and erosion illustrated in the canyon and other areas in the southwest.

(3) Report on the geology of portions of Nevada, Utah, California and Arizona, examined in the years 1871 and 1872. U. S. Army Engineers. Report on Geographical and Geological Explorations west of the 100th meridian. Vol. 3, Washington, 1875.

C. E. Dutton made an extended examination of the Grand Canyon district and the adjoining high plateaus of Utah. He prepared a geological map with topographic base and in delightfully written reports (4) threw a flood of light on the geological history of the region in later Paleozoic and succeeding periods.

(4) Physical geology of the Grand Canyon District, U. S. Geological Survey, 2nd Annual Report, 1882, pp. 49-166, and Tertiary History of the Grand Canyon District, U. S. Geological Survey, Monograph No. 2, with folio atlas. Washington, 1882.

In the winter of 1882-1883 C. D. Walcott studied in detail the sedimentary rocks in the lower part of the canyon and found that they comprised two great groups, which he named Chuar and Unkar, and eventually placed in the Algonkian. He mapped in considerable detail the relations of these groups in a region of about fifty square miles in the big bend northeast of Grand View Point (5).

(5) Pre-Cambrian igneous rocks of the Unkar Terrane Grand Canyon of the Colorado, Arizona. U. S. Geological Survey, 14th Annual Report, 1892-1893, pp. 497-524. Washington, 1895.

W. M. Davis made a short but very fruitful excursion to the canyon in 1900 and published a highly suggestive pamphlet, discussing the origin of some of the topographic features.

An excursion to the Grand Canyon of the Colorado. Harvard Coll. Museum Comp. Zoology, Bull. Vol. XXXVIII. Geological Series, Vol. 5, pp. 104-201, 2 pls. 1901.

In 1902 to 1907, in investigating the geology of parts of the plateau region, I had occasion to measure the strata in the Grand Canyon at various points, and incidentally a map was prepared showing the distribution of the rocks (6). Names were also given to some of the carboniferous formations.

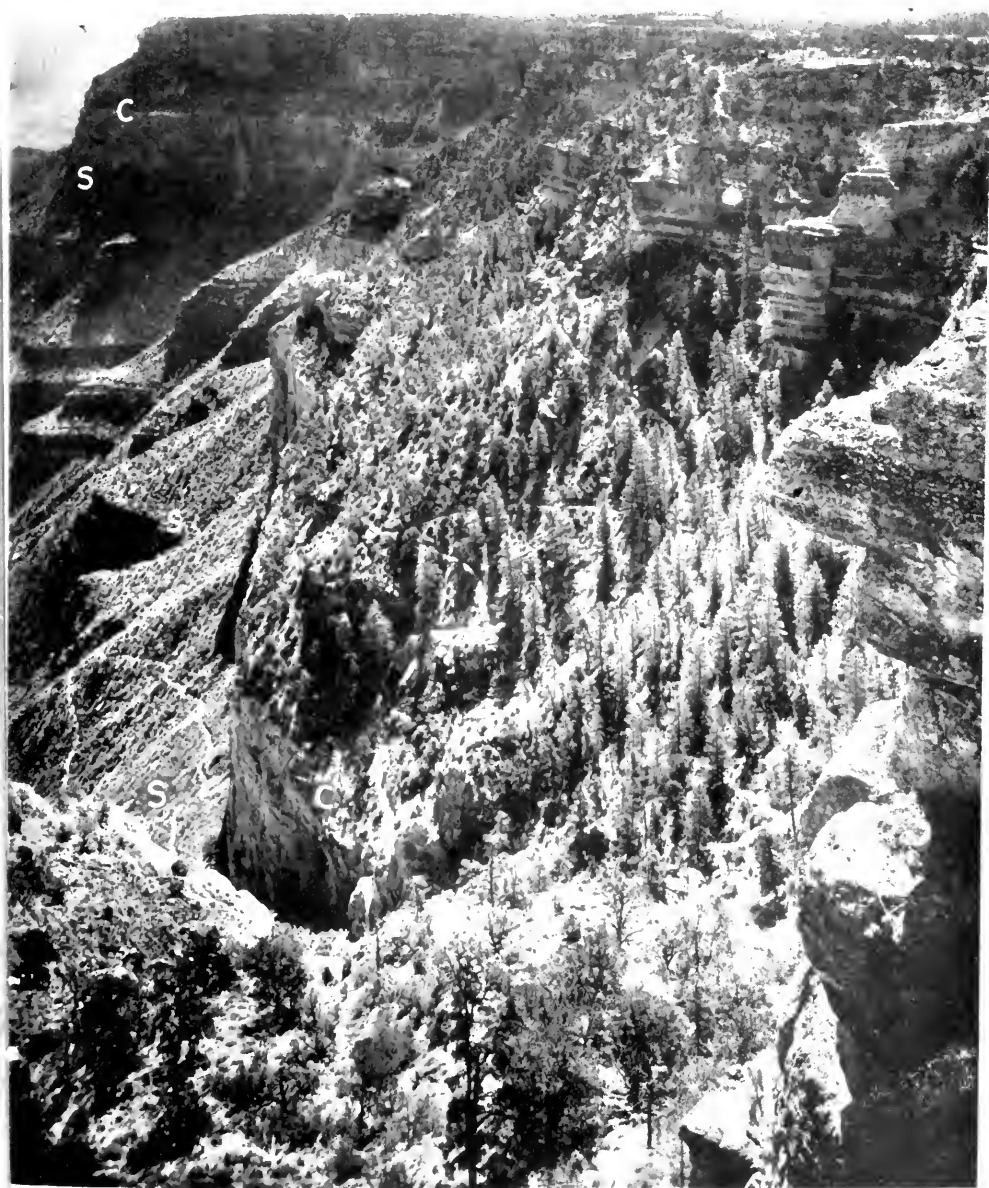
(6) N. H. Darton. A reconnaissance of parts of northwestern New Mexico and Northern Arizona. U. S. Geological Survey, Bull. 435. Washington, 1910.

In 1910, L. F. Noble (7) examined the Shinumo area of the Grand Canyon, treating especially the Unkar rocks, which he subdivided into several formations. A few years later the same observer examined the oldest rocks exposed in the inner gorge of the canyon (8) and their petrography was investigated by J. F. Hunter.

(7) The Shinumo quadrangle Grand Canyon District, Arizona, U. S. Geological Survey, Bull. 540, Washington 1914, and Am. Journal of Science, 4th Ser. Vol. 29, pp. 369-386, 497-528, 1910.

(8) Noble, L. F., and Hunter, J. Fred. A reconnaissance of the Archean complex of the Granite Gorge, Grand Canyon, Arizona. U. S. Geological Survey, Prof. Paper 98, pp. 95-113, 1916.

These are the most extensive publications relating to Grand Canyon geology, but there are many short papers calling attention to various details, and there are also numerous references to it in geological books and other works.



(Plate 10.) Looking east along river south of Grand Canyon at El Tovar. Bright Angel Trail is shown in part. C, Coconino sandstone; S, Supai red beds.



PORTRAITS OF EMINENT AMERICANS.

WHICH ARE RARE AND SCARCE.

BY CHRISTOPHER WREN, Librarian.

What constitutes the State?
Not high raised battlement or labored mounds,
Thick wall or moated gate:
Not cities proud with spires and turrets crowned,
Not bays and broad-armed ports
Where, laughing at the storm, rich navies ride;
Not starred and spangled courts,
Where low-browed baseness wafts perfume to pride.
No;—Men, high-minded men,
With powers as far above dull brutes endued
In forest, brake, or den,
As brutes excel cold rocks and brambles rude—
Men who their duties know,
But know their rights, and knowing, dare maintain,
Prevent the long-aimed blow,
And crush the tyrant while they rend the chain:
These constitute the State.

—*Sir William Jones.*

Somewhat over fifty years ago Judge William Sterling Ross presented to The Wyoming Historical and Geological Society a collection antiques and relics of various kinds, which he had purchased from Mr. Harmon Chambers of Carbondale, Pa., and which became the nucleus around which the present museum of our Society has been gathered.

The collection consisted of geological specimens, Indian relics, ancient and modern coins, historical matter, and also a number of specimens from the old Peale Museum of Philadelphia and from the Dr. Abbott Museum of New York City, largely from Egypt.

The detailed data which we have of this "Ross" (Chambers) collection being rather meagre, on learning that a son of Harmon Chambers lived at Beverly, New Jersey, correspondence was opened with him, with the object of obtaining such information as he might have about the collection owned by our Society. The writer paid a visit, also, to Beverly, and had an interview with Mr. Chambers, but as he anticipates writing a paper at some future time, devoted entirely to a description of this collection, only a single item, the Field Washington portrait, is taken up at this time.

While visiting Beverly attention was attracted to a portrait of George Washington which hung on the wall. Inquiry was made about this, which seemed to be an unfamiliar portrait of Washington; the information was given that it was copied from a miniature painted on ivory and presented to Thomas Meredith, a son of Samuel Meredith, first Treasurer of the United States, by a member of the Washington family.

A full description of this portrait is given in this paper, and it is illustrated as the Frontispiece 1a and also as 1b herein.

It is a very natural desire of the world to know as much as possible about eminent personages who have acted leading parts in its affairs, as statesmen, warriors, scientists, and in the other activities of life.

In the lapse of time all those who personally knew the leading actors of their generation pass from the scene, and, for a time, hearsay and tradition may give some idea as to what the characteristics of the individuals were, but eventually such data becomes more and more contradictory and unreliable.

Final judgments and opinions about eminent personages who have lived in times past are finally formed from two principal sources; either from written biographies of them or from good portraits.



Copy of Field portrait of Washington, made from a life size colored photograph, in possession of Mr. Luther H. Chambers, Beverly, N. J.



It has been said that biographies are very often written by admirers or friends, who, because of friendly partiality, give too flattering an account of the person about whom they are writing, or by persons who are unfriendly to their subject, and thus are hypercritical and fault-finding and lay too great an emphasis on the weaknesses and shortcomings of the personality they are describing.

A true likeness of the human face, also, generally gives a pretty fair index to the character of the person whom it represents, for do what we may we cannot prevent our personality from showing to a considerable degree in our countenances. Time and the experiences of our lives leave somewhat of their marks on our faces.

Beauty is not the standard on which we base our judgments, for there are plain featured people in whom we feel safe in placing trust, and other people whose beauty we cannot help appreciating and admiring, and yet we may not have the same sure confidence in them.

Before the discovery and practice of photography, portraits were made by hand painting, either in color with oil pigments or in plain black and white drawings or engravings. The truthfulness to nature of such portraiture depended on the extent to which the artist succeeded in catching those indefinite and indescribable features in their subject's face which express character and individuality. The artist must have not only the faculty of seeing these features in his subject, but also the technical skill to reproduce them on his canvas.

The originals of the portraits which are illustrated in this paper were very largely made before photography came into use, any exceptions having been produced after the Daguerreotype or Ambrotype came in vogue.

So far as we know none of the portraits herein described are widely known or have been much illustrated, while some of them seem to be shown in this way for the first time, and it is altogether likely that they will obtain a wider publicity

in our volume than they have heretofore received. Such rare copies of them as may have been preserved are doubtless in the hands of private owners and are unknown to the general public.

All the portraits illustrated, being those of personages who were of national and international historical prominence, they naturally fit well into the historical department of our Society, and the best care has been taken to secure as complete and accurate data about them as possible.

FRONTISPIECE. (1b.)

Portrait of George Washington and Locks of His Hair.

Among the very rare relics in our society's collections is this daguerreotype (or ambrotype) of Washington and his hair, illustrated as the frontispiece of this volume. Neither of the specimens of his hair was originally associated with the portrait, but they were presented to the society by Mr. Sharpe Delany Lewis, with this memorandum made by himself:

"Enclosed are two locks of Gen. Washington's hair, taken from some relics which were in the Delany family in Philadelphia, and in possession of Mrs. Josiah Lewis many years previous to her death. The hair was in two parcels labelled, and no doubt cut from the head at different times, at the house of Sharp Delany, at which he was a frequent visitor during the sitting of Congress in Philadelphia."

NOTE.—Mr. Sharpe D. Lewis, the donor, is a grandson of the Mr. S. Delany above referred to.

Signed: "C. F. I."

(Dr. Charles F. Ingham.)

Our present impression about the daguerreotype is that it came to our society as a part of the large collection which Judge William Sterling Ross bought at Carbondale about sixty years ago, as previously mentioned, and presented to the society.

This portrait seems to be a copy of the same original

Dear Sir,

Mount Vernon May 16 1785

to for a penny, or for a pound is an old adage. - I am so hackneyed to the touches of the Printers pencil, that I am gen altogether at their back, and sit like patience on a Monument whilst they are delineating the lines of my face. -

It is a proof among many others of what habit & custom can effect. - at first I was as impatient at the request, and as restive under the operation, as a Colt is of the saddle - The next time, I submitted very reluctantly, but with less gloominess. - Now, no day moves more readily to the Phil. than I do to the Printers Chair. - It may easily be conceived therefore that I yielded a ready obedience to your request, and to the views of Mr. Pine.

Letters from England, recommending of this Gentleman, came to my hand previous to his arrival in America - not only as an Artist of acknowledged eminence, but as one who had discovered a friendly disposition towards this Country - for which, it seems, he had been marked

It gave me pleasure to hear from you - I shall always feel an interest in your happiness - and with Mr. Washingtons compliments & wishes has joined to my own for Mr. Hopkinson & yourself.

I am - &c. &c.

Y^r Most Obedt & affctd
Y^r Servant

Geo. Washington Esq.

Geo. Washington

miniature in oil as the one herein illustrated as Plate 1b, which was photographed from the colored picture now in the possession of Mr. Luther H. Chambers at Beverly, New Jersey, before mentioned.

Mr. Chambers told the writer that the original of his copy was a miniature painted on ivory and enclosed in a gold case, which he remembers having seen, at the time when it was owned by Samuel R. Meredith, grandson of the first U. S. Treasurer, and he was told that it was painted from life by an artist whose name he had forgotten.

At this point it seemed almost a hopeless chance of being able to trace the portrait further or to learn who the artist was that had painted it. After, however, writing a dozen or more letters of inquiry to persons who might be able to identify the portrait, the following letter was received from the Librarian of Congress:

LIBRARY OF CONGRESS, WASHINGTON.

"Manuscript Division.

October 1, 1919.

"DEAR SIR: In reply to your inquiry of September 29th, I find that the Washington miniature in question was painted by Robert Field, an English engraver and amateur painter, in the city of Washington, in the year 1799. There seems to be no evidence available that it was painted from life, but the presumption is that it was painted from a miniature from life, which Field had previously executed.

"You will find a reproduction of the Field miniature on Plate XVI, of E. B. Johnston's 'Original Portraits of Washington,' Boston, 1882, and an account of it on pages 115-116. Field has apparently painted three known miniatures of Washington, and the one you inquire about appears to be the counterpart of his second miniature, which was given by Martha Washington to Tobias Lear, immediately after the General's death. This counterpart was made for Thomas Meredith, the son of Samuel Meredith, and remained in his possession until 1853, when he gave it to Samuel R. Meredith, from whom it passed into the possession of

Charles C. Moreau. Moreau had it in 1882. As to its present whereabouts I have no further information.

"Very truly yours,

"(Signed) J. C. FITZPATRICK,

"Asst. Chief, Manuscript Division."

"Mr. Christopher Wren,

"Corresponding Secretary and Librarian

"Wyoming Historical and Geological Society.

"Wilkes-Barre, Pa."

The work of Miss Johnston's on "Original Portraits of Washington",* referred to in this letter, was consulted in the rooms of The Historical Society of Pennsylvania, Philadelphia, and the following information secured about the portrait and the artist who painted it:

ROBERT FIELD.

"This engraver and amateur painter executed three miniatures of Washington and one of his wife. Field is better known as an engraver, but his miniatures are excellent. He was on a visit to Mount Vernon in 1798, and made his life studies there.

"The one taken at that time of Washington descended from Mrs. Lawrence Lewis to her grandson, Lawrence Lewis Conrad, Baltimore.

"This gentleman has three certificates establishing beyond question its claim to originality. Probably a more exquisite work will not be found in the entire collections of miniatures. It is on ivory and remains in the plain gold case, with a lock of Washington's hair plaited in the back.

"Dunlap and other writers of the day are not inclined to allow that these paintings were original, but there could be little doubt that Field would improve even by stealth, such opportunity as he enjoyed; and there is an individual touch and pose that strengthen this view. Their delicate finish and charming tints challenge the admiration of the most fastidious. They are marked 'R. F.'

"Field's second miniature, with the same initials, is owned by Mrs. Wilson Eyre, of Newport, R. I. It is not so well

*Original portraits of Washington, including statues, monuments and medals, by Elizabeth Bryant Johnston, Boston. James R. Osgood & Company, 1882.

To the memory of James Abram Garfield this volume is dedicated.

preserved in color, or was not so highly toned, but in other respects it is the counterpart of the first.

"It was worn by Mrs. Washington in a locket, and immediately after her husband's death was presented by her to Col. Bear. It is set in a heavy plain gold case, and on the back is inserted a lock of Washington's hair. On the satin lining of the case is written in characters rather indistinct: 'Presented to T. Lear, by his friend, Mrs. Washington, 1801.'

"This miniature has been wrongly attributed to Archibald Robertson; but the drawing is decidedly the work of another pencil not possessing the vigor of the Scotch artist. In drawing, it is very like Stewart, with the exception of the mouth, which is better. It is in all respects a counterpart of the miniature known to have been painted by Field, owned by Mr. Charles C. Moreau, the enthusiastic collector of engraved heads of Washington.

"Therefore, it cannot be admitted that 'R. F.' stands for *Romage fecit*, nor for *Robertson fecit*, as thought by some. Mr. Moreau has in his possession the following letter from a former owner, giving the history of the painting."

"N. Y., Octo. 15, 1858.

"MR. MOREAU.

"DR. SIR: This picture was painted by a Mr. Field, at Washington, in the year 1799, for Thomas Meredith, Esq., who wished to take a likeness of the father of his country with him on his going abroad. It was pronounced by all the Washington family, and his immediate friends at the time it was taken, to be an admirable likeness; and Thomas Meredith himself knew Washington very well, having spent, by special invitation, four or five weeks with Washington at Mount Vernon, and also knew him well while Samuel Meredith (his father) was first Treasurer of the United States, and he (Thomas Meredith) also considered it the best likeness he had ever seen.

"This likeness has been through Europe, and to Calcutta, and Canton, and was in the Court of St. James exceedingly admired. This picture never was out of the possession of Thomas Meredith until it was handed by him to me in 1853, as a present for valuable services rendered him.

"Yours respectfully,

"(Signed) SAMUEL R. MEREDITH."

Mr. Rembrandt Peale has a theory, which is given in this characteristic letter to Mr. Moreau, a part of which has been published by Mr. Lossing; and it is appropriate to introduce, though Mr. Lewis' certificate shows the venerable artist to be mistaken:

"Philadelphia, Oct. 3, 1858.

"Mr. Moreau.

"DEAR SIR: I thank you for the photograph of Washington from Field's miniature. It revives my recollection of the miniature which I saw last spring, which is a copy of *Stewart's first portrait* (not the one in the Athenaeum, Boston). Of course, this miniature was painted probably in 1796. I have an impression that Mr. Field showed it to me in the year 1798. Field was an Englishman, painted in a beautiful style, and commanded good prices. He went to Canada, studied theology (a little), was ordained, and had the grace to be made a Bishop, adorning the office with a fine portly figure and a pleasant countenance. When at Centreville, on the eastern shore of Maryland, we took a walk into the country after a rain. A wide puddle of water covered the road beyond the fence on both sides. I climbed the fence and walked round; but Mr. Field (fat and lazy), in good humor, paid a negro to carry him on his shoulders over the water. In the middle of it Field became so convulsed with laughter that he nearly shook himself off the old man's back. I never heard anything of him after he obtained his fat benefice.

"Will you do me the favor to write me how many prints of Washington you have?

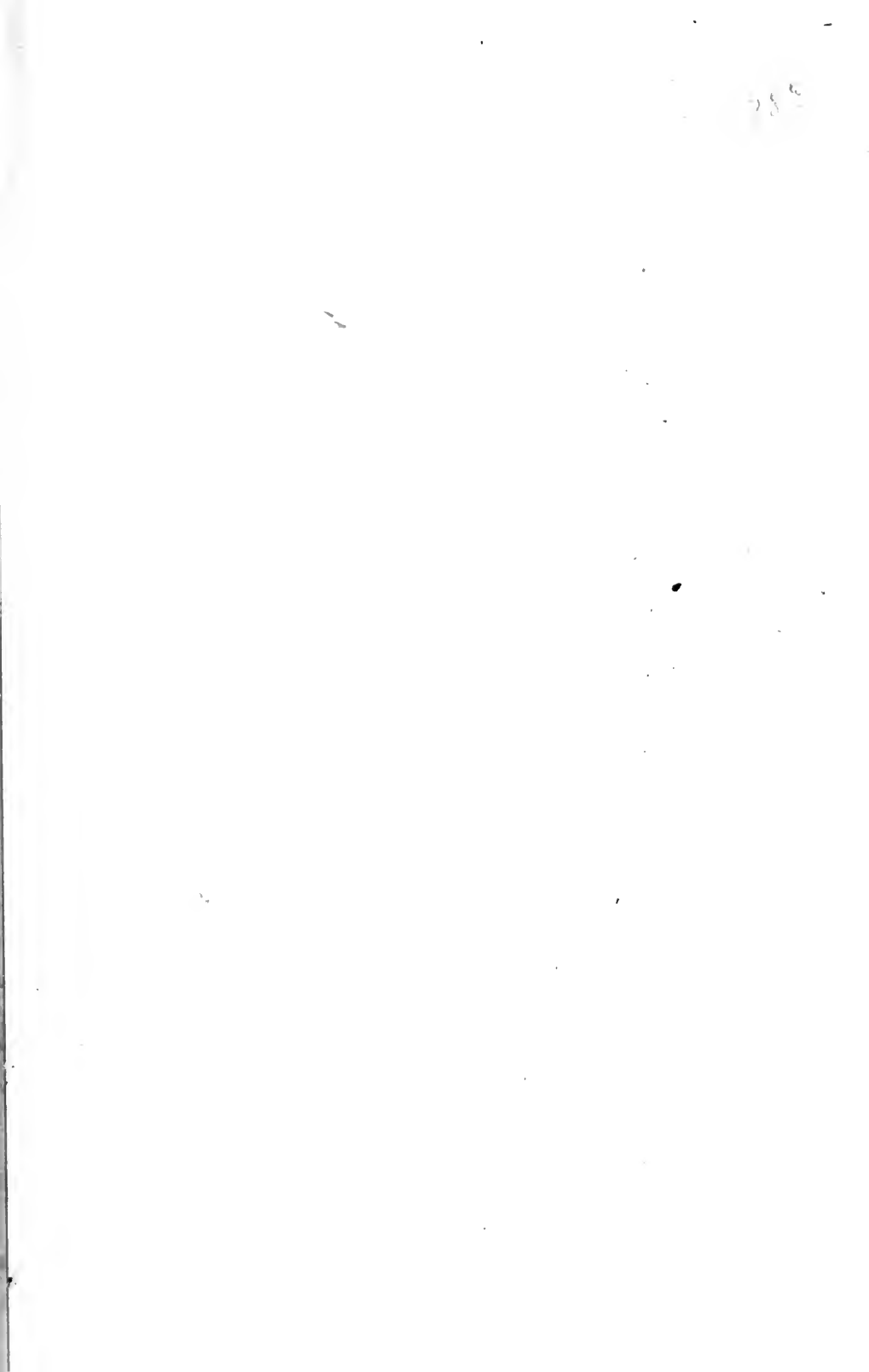
"I wish to mention it in my lecture.

"Respectfully yours,

"REMBRANDT PEALE."

Much of what is here said may be thought irrelevant to the matter under consideration, but it is set down as indicating the blind leads and trails which may have to be followed out to get at the true and authentic history of things, while all the efforts put forth are in the end fully repaid by arriving at the truth of the matter sought after.

It may further be remarked that the manner in which the Meredith family of Philadelphia came to have friendly



Miniature on Ivory of
Gen - George Washington
after the Battles of N. Jersey
(much admired)

23

Certificate attached to back of the frame of the portrait of Washington, owned
by Richard Sharpe, Esq., Wilkes-Barre, Pa.

relations with the Washington family and to receive the General's portrait by Robert Field, may be explained by this foot note in Volume II of Watson's *Annals of Philadelphia*, which is quoted verbatim:

"I have heard one fact of the time, to be relied upon too; Reese Meredith, a merchant of Philadelphia, seeing Washington at a coffee house, was so pleased with his personal demeanor as a genteel stranger, that he invited him home to dine with him on fresh venison. It formed a lasting friendship, and caused afterwards, it is said, the appointment of another Meredith of the family to be the first Treasurer of the Union. As this acquaintance was formed without formal introduction, it long remained a grateful recollection in Meredith's family as a proof of his discernment. He was the father of the Treasurer."

Incidentally, it may be interesting to learn, in these days when we speak lightly of a billion dollars, that Samuel Meredith, the first Treasurer of the United States, received the handsome salary of two thousand dollars a year. The honor of serving the government, together with the social distinction which the office conferred, seem to have outweighed the salary received in those early days.

In conclusion, it may be said that, if the unfinished portrait of Washington, which is most popular and most often copied is a true likeness of the original, it seems to be a sound judgment to class this portrait by Field, also as an exceptionally good representation of how the first President of the United States really looked.

WASHINGTON PORTRAIT.

By "J. T." (John Trumbull.)

This beautiful oil portrait of George Washington is the property of Richard Sharpe, Esq., of Wilkes-Barre, Pa., by whose courtesy we are enabled to illustrate it for the first time, so far as we know. It is framed in a plain beveled

gold gilt frame, three inches wide, the field on which the portrait is painted being $3\frac{1}{2} \times 4$ inches.

The following is a description of the picture, etc.: Dark blue coat, black cockade hat, with rosette, buff coat collar, yellow epaulettes, white ruffled neck cloth, gray hair.

Just above the left shoulder, in the original painting, are the initials "J. T.," similar to those on the fac-simile certificate reproduced in this paper, but they do not show in the engraved copy.

JOHN TRUMBULL.

Artist, 1756-1843.

John Trumbull, the son of a Colonial Governor of Connecticut, was born at Lebanon in that State and died in New York city.

He graduated from Harvard and, having a taste for art, took up its study as a life profession.

He served with credit as a commissioned officer in the Revolutionary War under Washington and Generals Gates and Sullivan. He resigned from the army in 1777 to go to England and pursue his art studies under Benjamin West, to whom he had a letter of introduction from Benjamin Franklin.

He was, however, arrested and held in prison for eight months as a traitor to the British government because of his service in the Continental army. He was released from prison on condition that he leave the country, Benjamin West and J. S. Copley becoming his sureties.

After the close of the war, having spent several years in France and other parts of continental Europe, Trumbull returned to England and resumed his studies under West.

He was commissioned by the U. S. Congress to paint historical pictures for the government and is most widely known for his paintings of this kind; his Signing of the Declaration of Independence being one of his most popular works. Trumbull painted also the portraits of many of the prominent men of his time, among them being Washington, Hamilton and Jefferson. Some of his miniatures are said to excel his larger portraits, while his reputation is principally based on his historical paintings.



Portrait of George Washington by J. T. (John Trumbull), taken from the original painting owned by Richard Sharpe, Esq., Wilkes-Barre, Pa.

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Portrait of Washington, by Cephias Thompson, copied from the original oil painting owned by Miss Frances G. Markham, Dorranceton, Pa.

PORTRAIT OF WASHINGTON.

By Cephas Thompson.

Of this portrait of President Washington, the following history has been given to us: The portrait was painted by Cephas Thompson, and was owned by Cephas Giovanna Thompson, son of the painter, who himself became a celebrated painter and artist. He in turn left it to his daughter, who in turn willed it to Mrs. William Harris Markham. In course of time the portrait came into possession of her daughter, Miss Frances G. Markham of Dorranceton, Pa., and she has kindly consented to The Wyoming Historical Society now publishing it for the first time, as an unknown and well authenticated portrait of George Washington, the first President of the United States.

Cephas Thompson, who painted this portrait of Washington, was born in Middleborough, Massachusetts, in 1775, and died in the same place in 1856. He was one of the well known early American portrait painters.

Following the custom of the period, he spent each winter in the South, going from town to town painting portraits. Consequently his work is found in every city from Philadelphia to New Orleans.

The best known of his portraits are those of John Marshall, Stephen D. Decatur, Davis Ramsey of South Carolina, John Howard Payne, George Washington Parke Custis.

Custis was a pupil of Thompson's and probably because of this connection opportunity was given Thompson to paint the portrait of George Washington.

It is framed in the original gold gilt frame, the largest diameter of which is fifteen and one-half inches, the portrait being about one-half life size. As seen in the reproduction, the portrait bears evidence of its age.

The dress consists of a black coat, queue tied with a black ribbon (which shows faintly in the original, but has not been reproduced in the photograph from which the half-tone was made), white stock, frilled shirt and grey hair.

BENJAMIN FRANKLIN.

After Joseph S. Duplessis.

Good portraits of Benjamin Franklin are extremely rare, which may give rise to speculations as to whether he was not adverse to having likenesses made of himself. It will be remembered that Franklin was a Quaker, and that the Society of Friends was opposed to pictures of all kinds. It has been suggested that their practice in this particular was because of a strict interpretation of the Commandment of Holy Writ against the making of any graven image or likeness.

We also bear in mind that when Benjamin West, having shown an unusual talent for art at a very early age, and it was proposed that he should take up that study as his life profession, it was strenuously opposed by the Friends' Meeting, and also by his own family; and it was only after long consideration that their rule in this matter was reluctantly relaxed in his case.

Having had business for a number of years with the Franklin Fire Insurance Company of Philadelphia, which used many portraits of Franklin on their business papers, the writer came to have a knowledge of about all of the likenesses of him, as that company used a number of them on its business stationery.

Almost without exception they seem to be mere casual sketches and not seriously considered portraits which had been made at sittings to professional artists. The inferior quality of these portraits can hardly be explained by a scarcity of portrait painters in America during his life, for there are a number of examples of good work done in this line during Franklin's lifetime; or, perhaps, because of the expense he failed to have his portrait painted, for we are led to believe that in money matters he resembled the cannicness of the proverbial Scot.

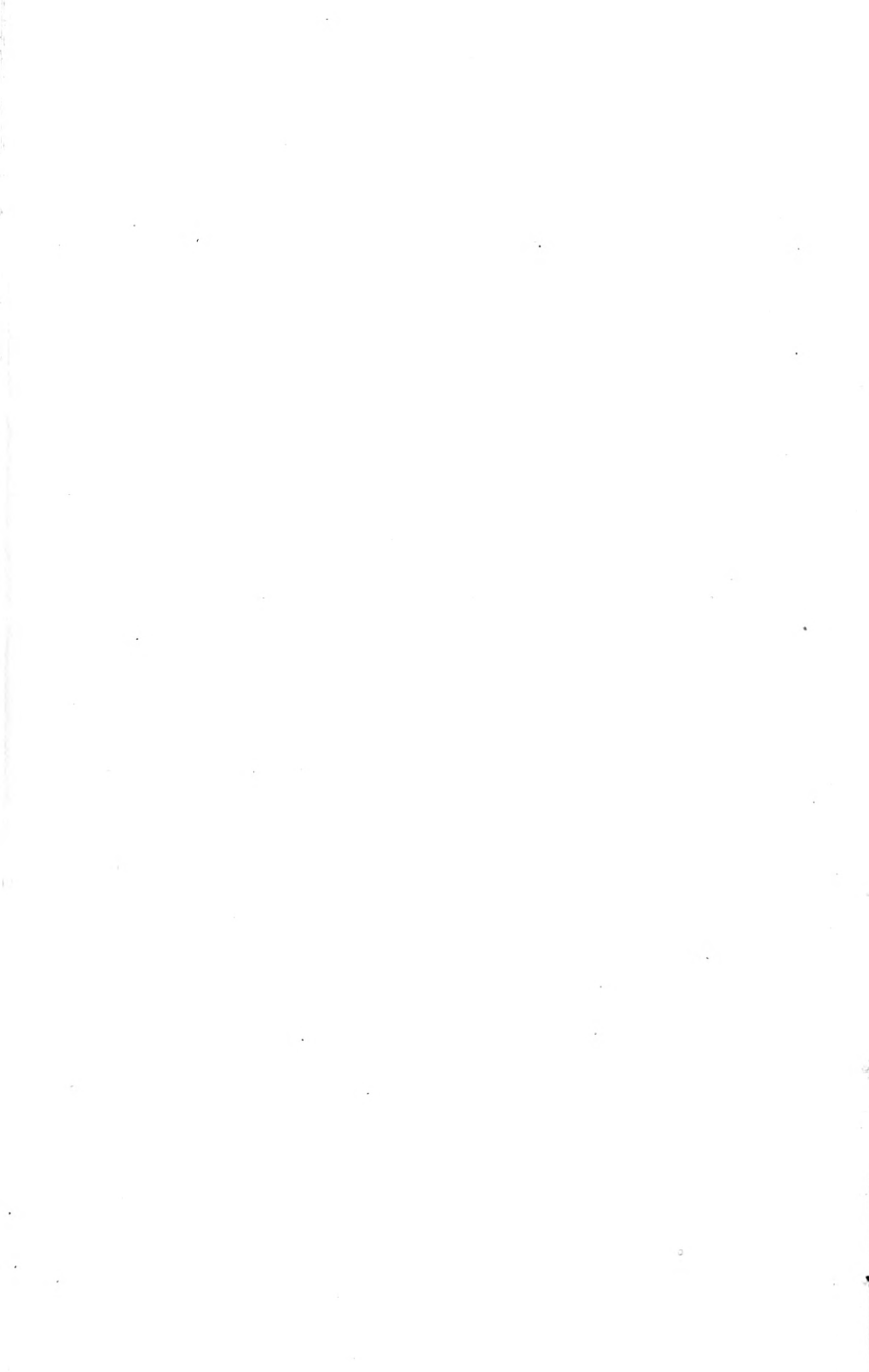
The particular portrait of Franklin, which is illustrated in this paper, was copied from an engraved copy of the oil



BENJAMIN FRANKLIN,
Peint d'après nature pour la Famille.
Exposé au Salon de 1779.

Duplessis pinxit.

A. Maurin, Lith.



portrait painted by Joseph Siffred Duplessis in Paris in the year 1778, which was exhibited in the French Salon in 1779. This was during the time when Franklin, together with John Adams, Albert Gallatin and Silas Dean, were Commissioners from the American Colonies to the French Government, with the hope of securing their sympathy and assistance in the Revolutionary War. It is hardly necessary to say that their mission was successful, resulting in LaFayette, and other French officers, together with war-seasoned troops, and a part of the French Navy, coming to America and giving valuable aid to the struggling Colonies.

Franklin spent several years in France at this time, and was received with great consideration; in fact, was one of the "lions" of the day. It was conceded that his efforts as a diplomat in these matters had a large influence in producing a favorable result for our country. He was one of the most noted characters in Paris of the time and received the pseudonym of "the man of the hour". May it not be that seeing the fine portraits of his friends and the illustrious persons in Paris, he was led to consent to giving sittings to Duplessis for a portrait of himself, resulting in this most satisfying likeness that we have of him?

Franklin did not bring his portrait to America with him, which would seem to confirm the idea that he had no vanity about his own personal appearance, and but slight taste for pictures. The comments at the time on this particular Franklin portrait are said to have been very favorable by Americans who were visiting Paris, and by his acquaintances among the French people. The height and fullness of the brow indicate intellectuality; the kindly expression of the eyes a geniality of disposition and sense of humor, of which we have examples in the drollery of remarks attributed to him. At one time when the question of the friends of the Colonies standing firmly together was being discussed, he said: "We had better hang together, or we are likely to all hang separately;" and on another occasion, when attention

had been directed to the half of a figure of the sun which ornamented the back of the chair of the presiding officer of the meeting, he likened it to the fortunes of the struggling Colonies, remarking that there was still some doubt as to whether it might typify a rising or a setting sun for them.

The mouth in the portrait indicates an amiable disposition, without weakness. It is a manly face, handsome, without prettiness, and, if it is not a true likeness of the man, we feel that he ought to have looked like this, judging him by his writings and his lifework. Yet with all his good and strong traits it would be a mistake to liken him closely to Nathaniel, who was "an Irealite, indeed, in whom there was no guile," for Franklin had his due share of worldly wisdom.

Joseph Siffred Duplessis was one of the most eminent artists of Paris of his time, and painted portraits of the titled and wealthy people of France, including King Louis XVI.

COMPOSITE FRANKLIN AND WASHINGTON STATUETTE. Staffordshire, England.

In the Collection of The Wyoming Historical and Geological Society.

From the best obtainable information, this statuette was made in Staffordshire, England, about the beginning of the nineteenth century.

It was presented to the wife of Mr. George A. Edwards, a former member of the Wilkes-Barre Record staff, by her grandfather, who had bought it in Wales many years ago. Mrs. Edwards brought it to America.

That it is a composite of Franklin and Washington is plainly indicated by its different features.

The head is that of Franklin, while it is labeled General Washington. The head and face were doubtless taken from an engraving of the Duplessis portrait of Franklin, of which it is a fairly good copy, considering that it was made by a potter who was not a trained artist. The general figure seems also to be that of Franklin, as it is more retund than

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Composite Statuette of Benjamin Franklin and George Washington, made in Staffordshire, England, about 1800; in the Collections of The Wyoming Historical and Geological Society.

the figure of Washington, which we see represented in the statues and pictures of him.

In all other respects the potter seems to have had Washington, a military man, in mind, and followed his own ideas as to dress and other features.

He had probably heard of some of the addresses which Washington had made, and, perhaps, the scroll in the right hand of the figure is meant to represent "Washington's Farewell Address." Franklin was most eminent as a writer and diplomat, and if he had the art and graces of oratory we have heard but little of it.

The bright colored costume is also quite different from the plain clothes which Franklin, the Quaker, wore. The three-cornered hat suggests the military man, in which character Washington was most heard of in England at that early time.

So we may safely conclude that the Staffordshire potter who made this unique statuette of two of the most eminent Americans of their day and generation had but a hazy knowledge of the man or men whom he was representing.

The following is a description of the statuette: Height, fifteen (15) inches; light blue coat, lined with red; red cuffs on coat sleeves and lace wrist cuffs; long yellow "sprigged" vest; red-barred short clothes; green neck cloth or tie, black "cocked" military hat in left hand; scroll representing an address or speech in right hand; white hose and low black slippers, with buckles.

It does not seem that Benjamin Franklin ever wore such a costume, and it is doubtful whether George Washington did either, although he followed the prevailing fashions more closely than Franklin did. The statuette is made of an opaque earthenware similar to the "Ironstone" china of the present day, and the colors were laid on under the glaze.

ANDREW JACKSON.

By George P. A. Healy.

The daguerreotype of Andrew Jackson, from which the half-tone engraving here used was taken, was secured from Mr. Charles M. Johnston of Danville, Pa., about five years ago. He got it from Dr. Hedenburg, who at one time occupied some government position in Washington, D. C., and during that time made a collection of the portraits of notabilities in Washington. The Doctor afterwards removed to Danville, and, associated with his son-in-law, carried on the apothecary business at that place.

The original oil portrait from which the daguerreotype was taken was painted by George Peter Alexander Healy, an American artist of some note, born in Boston, Massachusetts in 1813.

Healy visited Europe, and, on his return to America, under a commission from Louis Philippi, king of the French people, painted the portraits of a number of eminent Americans, among them that of Andrew Jackson, of whom he painted two, one of which was in The Hermitage, Nashville, Tennessee; the other hung on the walls of The Louvre, Paris, France.

After the Civil War The Hermitage was dismantled of all its furnishings by the relatives of Jackson.

About thirty years ago "The Ladies' Hermitage Association" was chartered by the State of Tennessee, which conveyed The Hermitage property to them and they have repaired the building to its former condition and are gathering the furniture and other belongings of Jackson, and replacing them in their old home as fast as circumstances permit. So far as known, the Healy portrait has not yet been returned to its old home in The Hermitage.

In looking over a catalogue of the items which have been returned to The Hermitage, several items appear which indicate that the Jackson family had somewhat intimate



Andrew Jackson, copied from a Daguerreotype, owned by Christopher Wren,
Librarian of The Wyoming Historical and Geological Society.

relations with families in our own State, which it may not be out of place to mention at this place.

Andrew Jackson's adopted son, Andrew (D.) Jackson, Jr., married a Miss Sarah Yorke of Philadelphia, and lived at The Hermitage, "where all her children were born, and the family were the solace and comfort of General Jackson's declining years."

Item 5, is a portrait of "John Meredith Read, Chief Justice of Pennsylvania, a friend of General Jackson." It is a curious coincidence that just at the time when the Field portrait of Washington becomes a part of this paper, the name of Meredith should appear a second time incidentally in connection with this description of a portrait of General Jackson and the furnishings of The Hermitage, Jackson's home. Martha Meredith, daughter of Samuel Meredith first Treasurer of the United States, was a sister of the Thomas Meredith to whom the Field portrait of Washington was presented, and she was the grandmother of John Meredith Read, Chief Justice of Pennsylvania before mentioned.

Item 26 is a "portrait by Earl of General Jackson on "Sam Patch," a magnificent white horse, presented to him in 1833 by the citizens of Pennsylvania. General Jackson rode this horse in a grand civic and military parade given in his honor in Philadelphia, after which it was sent to Nashville and died during the Civil War. A Federal soldier whom General George H. Thomas had placed on guard, fired a military salute over the grave.

In the year 1913 the old soldier who had fired this salute paid a visit to The Hermitage and pointed out the spot where Sam Patch was buried, which had been lost sight of, and the ladies intend to place a marker over the grave.

S. G. Heiskel, Esq., of Knoxville, Tenn., who has written a biography of Andrew Jackson, on receiving a copy of the daguerreotype illustrated in this paper, which was sent

on request, expressed the opinion that it is a copy of one of the best portraits of the President extant.

It may also be of interest to mention that while the Northern army was in possession of The Hermitage during the Civil War a guard was placed over the property by order of General George H. Thomas, and no acts of vandalism or destruction were practiced by the soldiery on the estate.

"IF."

If you can keep your head when all about you
Are losing theirs and blaming it on you,
If you can trust yourself when all men doubt you,
But make allowance for their doubting, too;
If you can wait and not be tired by waiting,
Or being lied about, don't deal in lies,
Or being hated don't give way to hating,
And yet not look too good, nor talk too wise;

* * * * *

If you can talk with crowds and keep your virtue,
Or walk with kings—nor lose the common touch,
If neither foes nor loving friends can hurt you
If all men count with you, but none too much;
If you can fill the unforgiving minute
With sixty second's worth of distance run,
Yours is the Earth and everything that's in it,
And—what is more—you'll be a MAN my son.

—Kipling.

A YANKEE CELEBRATION AT WYOMING IN YE OLDEN TIME.

BY STEUBEN JENKINS, ESQ.

READ BEFORE THE WYOMING HISTORICAL AND GEOLOGICAL SOCIETY.

[Reprinted from Vol. I, Proceedings of the Society.]

*Mr. President and Gentlemen of the Wyoming Historical
and Geological Society:*

A paper was handed to me by your Secretary, Dr. Harrison Wright, with a request that I should write out a history of the circumstances in which it originated. This I have done, somewhat in the spirit of the times that called it forth, following the history of the facts as given in the writings of Col. John Franklin, Elisha Harding, Esq., John Jenkins, Esq., and others. To modernize the facts or the statement of them, would destroy both their spirit and character.

The paper reads as follows:

"AUGUST 6th, 1784.

Sir:—Please to send me one gallon of wine and two pounds of sugar, in order to keep up the *feu de joie*, and you will

Oblige yours,

"JNO. JENKINS, JR.

"MR. HAGEMAN."

ENDORSED:

"To Gallon Wine 12s.

To 2 lbs. Loaf Sugar 3s. 9d."

It will be recollected by all students of Wyoming History that the controversy which had long subsisted between the settlers at Wyoming, under the Susquehanna Company on the one side, and the Penn proprietors, and more latterly the Government of Pennsylvania on the other, culminated in a Court which sat in Trenton, N. J., and made a decree on the 30th of December, 1782, so indefinite in regard to the rights of soil and of the settlers thereto, that the real questions at issue were still open and matters of controversy. The

Judges who composed that Court, in conjunction with their decree and as a supplement to it, wrote a letter, in which they stated:

"In the course of executing this commission, we have found that many persons are, or lately have been, settled on the lands in question. Their individual claims could, in no instance, come before us, not being in the line of our appointment."

Subsequently, Cyrus Griffin, one of the Judges, wrote a letter, in which he stated that the Judges were unanimously of the opinion, "that the private right of soil should not be affected by the decision." "The decision was not to reach the question of property in the soil." "And while jurisdiction was given to Pennsylvania, the right of soil, as derived from Connecticut, was to be held sacred."

Under such a state of facts, it will readily be seen that the decision at Trenton decided nothing of the existing controversy and that the decree of the Court, as to that, was a mere *brutum fulmen*.

Of course, the Pennsylvania Government, and those claiming under her, fully accepted the right of jurisdiction, and claimed, in addition, that it gave them all rights subject to that of jurisdiction, one of which was that of soil. On the other hand, the settlers, for the sake of peace, yielded at once the right of jurisdiction, but planted themselves firmly upon the right of possession and soil, and, by memorial, so informed the Government of Pennsylvania, in which they prayed of her protection in those rights, and a confirmation of their titles to their lands.

The questions involved in this controversy were not new to the Colonies or the States. Connecticut and Rhode Island, Connecticut and Massachusetts, and Connecticut and New York, had experienced long and bitter controversies over their boundaries, in which personal conflicts of a somewhat serious character had taken place, but when the question of boundary, and hence that of jurisdiction was settled, no per-

son was deprived of his private right of soil by the State to which the jurisdiction was finally adjudged, no difference which State that right was acquired under.

New York had controversies about jurisdiction, in addition to that with Connecticut,—with Massachusetts on the one side and New Jersey on the other, and the settlement of the question of jurisdiction never disturbed or forfeited the private right of soil.

Pennsylvania and Virginia had a contest in regard to the western and southern boundary of Pennsylvania, in the settlement of which Virginia lost the county of Youghiogheny, but this latter State seeing the disposition of the former towards the settlers at Wyoming, yielded her jurisdiction only under an agreement entered into in June, 1780, "clogged," as one writer says, "with a condition which protected all rights to persons and property which her settlers had acquired prior to that date,—providing that rights to lands should be determined by priority of title or settlement." The territory surrendered to Pennsylvania by this agreement consisted of the present counties of Greene and Washington, and parts of Allegheny, Beaver, Fayette and Westmoreland,—being all the territory west of the Youghiogheny river.

Pennsylvania also had a contest with Maryland and Delaware previous to the running of their line by Mason and Dixon, and Maryland and Virginia had a long and bitter controversy over their boundary line, which, when settled, changed the jurisdiction over a large part of their people, but in none of these cases were any of the settlers disturbed in their rights of possession or soil. Such a thing was never done or attempted anywhere except at Wyoming.—*See Appendix A.*

"The existing boundary, widely known as *Mason and Dixon's line*, was run in the years 1767 and 1768, and the proceedings thereon were ratified by the king in 1769 and,

the proclamations of the respective proprietaries to quiet the settlers, were issued in 1774."

The Government of Pennsylvania, in reply to the submission of the settlers to her jurisdiction and their prayer for civil government and the protection of their rights, on the 20th of February, 1783, passed a resolution, in somewhat doubtful phrase, yet encouraging the settlers to hold their ground, and pledging them the benefits of civil government. They also appointed commissioners to go to Wyoming and effect a settlement or compromise of conflicting claims.

John Paul Schott, who had signed the memorial of submission for the settlers, had permitted the friends of the Pennsylvania government to draw the memorial, and they had injected into it such a display of weakness and pusillanimity, that the Pennsylvania land sharks thought they had the settlers fully in their toils and could play with them at their pleasure, as cats frequently play with their victims, before putting them to death and devouring them.

On the 15th of April, 1783, the Commissioners appointed by the Assembly came to Wyoming, not alone as officers of Pennsylvania, but as agents of the Pennsylvania land claimants. They were addressed on the 19th of April by John Jenkins, Nathan Denison, Obadiah Gore and Samuel Shepherd, a committee of the settlers, tendering to them "every information, etc., they might need in the performance of their duty."

In reply they state, "that although it cannot be supposed that Pennsylvania will, or can she consistent with her constitution, by any *ex post facto* law, deprive her citizens of any part of their property legally obtained, etc., yet—etc., if your peaceable demeanor and ready submission to Government render you the proper objects of clemency and generosity, she may be prepared to extend it to you."

A somewhat lengthy and sharp correspondence now took place between Joseph Montgomery, as Chairman of the Committee of Assembly, and John Jenkins, as Chairman of

the Committee of Settlers, in which Alexander Patterson, as Chairman of the Committee of Pennsylvania Landholders, took a part. The communications of the latter were attested by Moses McClain, Clerk. There was a display of dignity in the diplomacy of Patterson and his clerk, such as Wyoming had not before witnessed.

Instead of attempting to settle, compromise and adjust conflicting claims, the Committee of Assembly, under the inspiration of Patterson, struck for a clean sweep of the settlers from the valley, requiring them to "disclaim in writing, publicly, plainly and unequivocally, all claims to their lands held under title from Connecticut," when "out of pure generosity on their part, they would permit the settlers to remain and occupy one-half of their lands for a period of eleven months, as tenants on shares, paying one-third of crop, at the end of which time they must surrender them and move off, giving full and absolute possession to the Pennsylvania claimants." Such amazing generosity was neither understood nor appreciated by the settlers, and they indignantly spurned and rejected these generous offers, and the Chairman of their Committee, in reply thereto says, that "although we mean to pay due obedience to the constitutional laws of Pennsylvania, we do not mean to become abject slaves. We do not think the lawful defense of what we esteem to be our own, can, with any justice, be termed a disaffection to government." In their review of the case, the Committee of Settlers touchingly allude to their early settlement here, to the part they took in the Revolutionary struggle, furnishing two companies for the Continental army; to their invasion and the slaughter of 300 of their number on the 3d of July, 1778; to their return, driving out the savages, re-taking the country, and regaining some trifling effects, and the possessions of their lands, since which, by many hard and hazardous skirmishes, attended with the loss of many lives and much property, they have held the same to this time," and they ask that such rights shall be

accorded to them as were ever given to settlers on lands under a mistaken or undetermined jurisdiction, after the question of jurisdiction had been determined and settled.

The Commissioners of the Assembly, and the branch Commission of Pennsylvania Landholders, deaf alike to the rights of the settlers and the justice of their claims, rejected any and all terms of compromise or settlement with the settlers, and declined further correspondence with them, on the ground that "there does not appear any prospect of accommodation."

In the meantime they had been scheming among themselves, to devise some plan of capturing the country and turning out the settlers by force. They divided the valley into districts and privately ordered an election for Justices of the Peace for the settlement, for the purpose, as they said, of "establishing civil government."

John VanCampen, of Northampton county, took charge of the election. The voters were hangers on of the two boards of Pennsylvania Commissioners, from New Jersey and elsewhere, and the eight Justices elected by them were all, except one, Nathan Denison, whose name was used without his consent, and who refused to serve, citizens of Northumberland and Northampton counties, and not inhabitants of Wyoming.

The Commissioners made report of their proceedings to the Assembly, and on the 9th of September, 1783, that body passed an act, confirming the division into districts or townships and approving the election of Justices, and the Counsel were directed to issue commissions to the persons reported as elected, which was accordingly done. The notorious tinker and tyrant, Alexander Patterson, agent of the Pennsylvania claimants, was one of these Justices.

The Justices having received their commissions at once prepared to go to Wyoming to enter upon the duties of their office, having Alexander Patterson at their lead as chief executive, who, with a turbulent crowd of followers,

arrived in the valley a few days in advance of the others. He arrived on the 20th of September, and at once issued orders for the settlers to vacate their possessions and leave the valley. Col. Zebulon Butler remonstrated with him and informed him of the claims and determination of the settlers, when, on the 24th of September, he was arrested by order of Patterson on a charge of high treason, put under a guard of soldiers, and next day sent on board a canoe to Sunbury Goal, without information, warrant, or mittimus. The Sheriff of Northumberland county took charge of him and admitted him to bail in the sum of £5,000, when he returned to his home and family.

Two of the other Justices, Mead and Seeley, arrived a few days later, when they and Patterson, with their henchmen, proceeded to drive off the settlers, and take possession of their farms. All who resisted or made objections were arrested as trespassers or rioters, put in a guard house and ultimately sent to Sunbury to jail.

"On the 22d of September, 1783, an act was passed to send two full companies of the late Pennsylvania line to Wyoming, for the declared purpose of keeping the peace there, but really for the purpose of assisting the Justices in driving off the people and robbing them of their homes and possessions. This Act was passed privately and kept on the records of the secret sessions of the House. The companies of Captains Shrawder and Christie were at once ordered to proceed to Wyoming, under the command of Major James Moore."—*Franklin*.

In the nefarious work of expelling the inhabitants, the Justices present were all active participants, but Patterson performed his part with such peculiar unction, as to make him appear the head and front of this offending. After dispossessing the settlers in the neighborhood of the garrison, the Justices proceeded to take possession of the best farms for themselves,—Mead taking ten of them as his share, many of which were the property and homes of widows

and orphans, whose husbands and fathers fell in the terrible massacre of the 3d of July, 1778. Nothing was too sacred to be sacrificed to their wicked rapacity."—*Franklin*.

On the second Tuesday of October, twenty-four of the settlers went to Northumberland and attended the election, there being no voting place nearer.

They offered their votes, which were received by the election officers, and were put into a separate box. To count them with the others would change the result. The return was made, with a statement of the facts, to the Assembly, and as the result would not be as satisfactory to that body with these votes counted as it would be without, they were rejected, and thus the settlers were refused participation in the choice of their rulers and hence in the government.—*See Appendix B*.

Patterson says of this proceeding: "A strong party in Northumberland has taken part with the restless people, and it is more than probable, (their views of popularity being now at an end, by losing their darling object, the votes of these exiles at elections,) that they will use every endeavor to stimulate your Honors to measures that will perhaps terminate in our ruin."—*Pa. Ar. 1783-6, p. 618*.

It would seem from this that Patterson was at the bottom of the scheme for rejecting the votes of the settlers.

This outrage, and the disposition manifested by it on the part of the Assembly, gave great dissatisfaction at Wyoming and the settlers concluded that if they were to have any property or rights, they must stand by and defend them by every means at their command. Their determined purpose and conduct held further proceedings on the part of the Justices in abeyance, until the 29th of October, when, as Franklin says, "Captain Christie arrived at Wyoming with a company of ruffian soldiers, a suitable reinforcement to assist the Justices in carrying their barbarous work into execution." On the very next day Patterson and Seeley, Justices, with Captain Christie and thirty of his "ruffian

soldiers, went to Plymouth, seized upon eleven of the peaceable inhabitants of that town, without complaint or warrant, and in the most cruel manner that these sons of Belial could invent, bound and drove them from their families at the point of the bayonet, in a cold and tedious storm, through water and mire, about five miles to the garrison, where they were forced into a cold, wet and nauseous guard-house, without fire, and totally unfit for human beings to stay in." Seized, while at their work, the prisoners were thinly clad, some without shoes or stockings, and they suffered intensely from the cold and dampness, as well as from the foul and nasty condition of their prison.

They were kept in this place, closely confined, some for six days and some for nine, when they were discharged without trial or alleged crime. In the meantime these Justices and their minions had seized upon the property of their prisoners and taken possession of their homes.

The grist mill at Shawnee, the property of Daniel Denton, one of the prisoners, was taken by Ezekiel Scoonover, a New Jerseyman. One of the officers visited the house of one of the prisoners and made proposals to his wife, that if she would submit to the gratification of his brute lust, her husband should be set at liberty. His proposal was rejected with scorn, and an outcry for help drove the scoundrel from his hellish purpose. As was but natural, the indignation of the settlers knew no bounds. They denounced the atrocious villainy in unmeasured terms, yet too feeble to forcibly resist, some took leases as required, while others fled, "having no other alternative to extricate themselves from a filthy guard-house, and from the barbarous hands of a ruffian banditti."—*Franklin*.

And now the injustice and inhumanity of these Justices took a new form. The soldiers forming the two companies of Christie and Shrawder, were billeted on the families in the neighborhood of the garrison, alleged to have been done by order of Council. So infamous was the work, that even

Patterson was ashamed of it. Twenty of these ruffian soldiers,—says Franklin—were billeted in the house of Col. Zebulon Butler, while he was seized and dragged to prison, and Mrs. Butler was sick in child-bed and her life despaired of. Under these circumstances the soldiers were allowed to disturb and annoy the family at pleasure. Application was made to the Justices and officers by the inhabitants in behalf of Mrs. Butler, but in vain. Wherever complaint, or even objection was made, the families were turned out and the soldiers put into possession.

In the latter part of November, Justice Mead brought in his family, when he relieved the house of Col. Butler of the soldiers and took possession himself of all except a small inconvenient room and bedroom. Another of the victims of their inhuman atrocity was Mrs. Esther Ransom, of Plymouth, relict of Capt. Samuel Ransom, who fell in the massacre. Her family consisted of herself and three daughters. All being sick and scarcely able to walk, were, in the most inhuman manner, turned out of their house in a cold and tedious storm, to seek shelter as best they might. This atrocity was committed by the brave and gallant Patterson, and executed by that inhuman tool of his, the Jerseyman Scoonover.

Too feeble to effectually oppose these atrocities by force, the settlers prepared a petition to the Assembly of Pennsylvania, on the 25th of November, 1783, which was signed in a secret manner by about sixty of their number and sent to the Assembly by Col. Franklin. In this petition they set forth the wrongs they were enduring from the cruel and barbarous treatment of the civil and military powers among them, and prayed the Assembly in its wisdom and justice to grant them relief. This was accompanied with depositions which set forth that treatment in detail.

The petition and depositions were laid before the Assembly, and on the 9th of December the members of the House from Northampton county were appointed a committee to

repair to Wyoming and inquire into the charges and report to the House at its next session, to be held in January, 1784.

The committee came to Wyoming and commenced their sessions on the 29th of December, and on the 10th of January, 1784, made their report to the Assembly, in which they stated that the complaints of the settlers were fully supported by the testimony, and they submitted the depositions taken by them which fully exhibited the wrongs perpetrated upon the settlers, by the troops and the so-called Justices.

The petition, report and testimony were not suffered to be read in the House, and the session passed without any relief for the suffering inhabitants at Wyoming.—*See Appendix C.*

The following items are extracted from the testimony taken by the Committee to show the spirit in which things were done by Patterson and his minions:

PRINCE ALDEN, *sworn*.—"On the last day of October, 1783, Patterson, Seeley, Lt. Ball, Erb and Ensign Chambers, and about twenty-five soldiers came to Shawnee, where eleven of the inhabitants were taken prisoners, among whom I was one, being sick with the fever. I went into the house of Cooley, where I saw Patterson. He asked me if I had any business there. I told him I had. Patterson called a sergeant to put me under guard. I asked him if I was guilty of anything. He said: "Damn him, take him along." I was taken to a house called a guard-house, where ten of my neighbors were confined. After about an hour we were driven off to the fort, five or six miles, at the point of the bayonet. Patterson and Seeley went with the officers. I said I was sick, not able to walk. The answer was: "Damn him; let him go along." * * * We were turned into the guard-house, wet and muddy. Capt. Christie and Lieut Ball came in and ordered us to lay down. We had to lay in the mud till morning.

The prisoners were denied provisions or drink. They begged for drink, but could not get any."

SAMUEL RANSOM, *sworn*, says:—On last of October 1783, Lieut. Ball and Ezekiel Scoonover came riding up to my door. Then says Lieut. Ball: "You are the damned rascal we want," and they both presented their pistols at my breast and swore if I didn't go quietly to Cooley's they would blow me through. I said I was sick and not able to walk. They damned me for a rascal and said they would make me able. Scoonover gave me his hand Ball tried to ride over me. They took me to Cooley's. On the way they said I was a damned rascal, and ought to be hung, and my damned old father before me. When we came to Cooley's, Ball says: "We have got the jockey." Esq. Patterson asked my name. I said Samuel Ransom. Says Patterson: "You are the jockey we want, away with him into the guard-house, with old Harvey, another damned rascal!"

We were insulted by the soldiers, the guard-house was wet and cold, without a floor, without wood for a fire, or anything for us to eat or drink.

A bit of grotesque humor is given by Col. Franklin in this connection: "Abel Yarrington, on the 7th of December, had presented his individual petition to the Pennsylvania Council, stating "that he had been turned out of his house in a violent manner, with his wife and furniture, by the officers of the garrison, and his house taken possession of by the soldiers," and praying for relief. The Council referred his petition to Alexander Patterson, Esq., for inquiry into the complaint. The citizens of Rome might as well have been referred to *Nero* for redress when their city was burning by his absolute command.

The Legislative Committee having reported on the state of affairs existing at Wyoming, as stated, and the Assembly refusing to take up the questions and give relief to the settlers, the Patterson party felt themselves not only fully justified in what they had done, but authorized to continue in the same course of conduct they had so strongly marked out. Supposing from the thorough manner in which Patter-

son was carrying on his work, that, by the 10th of June then next ensuing, he would have made a clean job of it, the House adopted a resolution "That the Supreme Executive Council be directed to discharge the troops at Wyoming on the 10th day of June next." Further proceedings in the matter were delayed from time to time until the 5th of April, 1784, the last day but one of the session, when the further consideration was indefinitely postponed, and the House adjourned to meet in August.

By the resolution passed by the House, fixing the 10th of June as the time to dispense with the military, Patterson was given to understand that by that date he must clear the valley of the settlers and turn it over to the land-sharks, in whose employ he was engaged.

Everything seemed to favor Patterson in his plans and purposes. The Legislature, although fully informed of his infamous conduct, instead of reproving him and suggesting the exercise of a little humanity in his treatment of the settlers, seemed to have set him on to a fiercer, more speedy and cruel execution of his nefarious work. In aid of his plan, seemingly, a most terrible ice flood swept over the valley about the middle of March, desolating the low lands, and depriving about one hundred and fifty families of their homes, which were swept away in the general rush of waters. Patterson, seeing his advantage, followed close on the heels of the flood, and assisted in completing its work of destruction and desolation.

Joined by a number of Tories and outlaws from New Jersey, on the 10th of April they, with the soldiers, were let loose upon the settlement. They removed the fences from the yards and other inclosures and inclosed them in a different form, fencing up the highways, leaving fields of grain open to be devoured by cattle, cutting the settlers off from water, breaking into houses in the night and dragging the inmates out and driving them off, beating and abusing them.

Zebulon Butler, Nathan Denison, John Jenkins and others

of the settlers petitioned Congress on the 1st of May, 1784, in which they set forth: "The soldiers are continually walking the street, and through every part of our settlement, near the garrison, as well by night as by day, some armed with guns and bayonets, and some with clubs, insulting and assaulting whomsoever they please. Some of the inhabitants have been met in the streets by this banditti and beat with clubs until their lives were despaired of. Others have been taken and carried into the fort, and there been beaten with clubs by the officers and soldiers in a most cruel manner, and then dismissed. One of those who had been cruelly beaten called upon one of the Justices for redress. A party of soldiers and the rabble set upon him and he fled, pursued by them. The pursuit continued for two days, the soldiers waylaying his house, the fields and highways, when on the night of 30th of April they caught him in his house, took him out by force, when they again beat him severely with clubs. In this manner was justice dispensed. The inhabitants were forbidden to cut a stick of timber to make shelter for their families, or even to repair their houses—wrecked in pieces by the water and ice. They were forbidden to draw their seines in the river for fish, which added greatly to their distress and suffering, for they had lost most of their provisions by the inundations. In addition to this, the soldiers are continually plundering the inhabitants, taking from them the little provisions they had left, and killing their cattle, sheep and swine, which escaped the flood."—*Pa. Ar.*, 1783-6, p. 613.

The settlers were even forbidden to make gardens, or plant any of their lands. Any attempt on their part to do any of the things forbidden by Patterson and his party, was taken advantage of to arrest the party and drag him or her before the Justices, where they were mulcted in a heavy fine and sentenced to the guard-house or jail, besides being beaten.

This course of proceeding, with its accompanying brutal-

ity continued in full force and vigor up to the 12th of May, 1784, when Franklin says: "The demon's disorder having come to its full height in the tools of government placed at Wyoming, and in their regiment of assassins, actuated by the overbearing influence of their Luciferian Master, they proceeded to the most cruel, inhuman and barbarous acts ever committed by a set of beings in God's creation, acts which drew sack cloth over the face of human nature, and would have distorted the countenance of an Algerian pirate, or the most barbarous savage. A bloody flag being hoisted in the garrison, Col. Zebulon Butler was first taken bail-prisoner and confined in his own house with eleven others of the inhabitants, under a guard of assassins, and treated in an inhuman manner. Small parties were sent through the different parts of the settlements, who disarmed the settlers before they were apprised. A small number, about twenty only, made their escape to the mountains with their arms."

On the 13th of May, 1784, the whole force of these assassins was collected and dispersed in companies under arms, through the settlement, to dispossess the inhabitants. One hundred and fifty families were turned out of their dwellings by force of arms, at the point of the bayonet, and collected together at the garrison, where they were confined under a strong guard until the morning of the 14th, when a black flag was hoisted and the bloody decree of Alexander Patterson, Esq., commander in chief of the assassins, publicly proclaimed, commanding the inhabitants to march immediately, with their families, from the settlement, by way of the Lackawanna to the Delaware, and from thence to Connecticut, and never return to Wyoming on penalty of suffering immediate death, at the first approach.

They were accordingly paraded and marched from the garrison, leaving the greater part of their effects behind them, a spoil for the enemy, and driven at the point of the bayonet, under a strong guard commanded by William McDaniel, the New Jersey Tory, and Henry Shoemaker, one of

the Pennsylvania Justices. The poor distressed families were insulted and cruelly abused by these outrageous, infernal sons of hell, without the least regard being paid to age, sex, or sickness. The widows and orphans were in distress. Numbers of women were stripped of their wearing apparel by the infernal crew, while on their march. The whole number of inhabitants driven out consisted of upwards of 800 souls—a great part of whom were widows and orphans, the greatest part on foot. Many were prohibited, and others were not able to take any provisions with them for their support.

After driving them for about twenty miles, the assassins beat and abused them in a most barbarous manner, and threatening them with immediate death if they returned, they left them to perish.

The greater number were eleven days in the dreary journey, the weather being unfavorable and the road wet and miry, the greatest part of the way with no shelter from the storms. The road was uncommonly muddy and deep, particularly the "Great Swamp," twelve miles through, known as the "Shades of Death." Upwards of 500 women and children were obliged to wade this dismal road on foot, the large streams and rivulets, of which there were many, were very high, and women were obliged to wade the muddy sloughs and rapid streams to their waists and often to their arms, with their children on this backs.

Two aged gentlemen, John Jenkins, Esq., and Mr. Stephen Gardner, who were cripples, were obliged to hobble through this long and dreary wilderness on crutches, or otherwise assisted by being carried on the backs of their friends. The former of whom was lame from a ball in his knee, received at the taking of Louisburg in 1745, besides being greatly afflicted with rheumatism.

The inclement weather aggravated his troubles, and he lingered along till the early part of November following, when he died, a victim to Pennamite cruelty. Numbers of

women, pregnant, or with children in their arms, and small children on their backs, leading others by the hand, traveled through mud and water, obliged to camp at night on the cold, wet ground, with their little ones wearied with the journey of the day, crying for bread, of which they had none to give, and they could but sit over them weeping themselves, to hear the sobs of grief and suffering of their little ones until sleep soothed their griefs and robbed them of their sufferings and cares."—*Franklin*.

On the arrival of the first party at the Delaware, a petition to the Pennsylvania Council was prepared and sent by Ebenezer Johnson to Philadelphia, stating their grievances and praying for relief. Others, after providing for the care of their families, set out to attend the sessions of the Supreme Court at Sunbury on the 25th of May. At Sunbury they met Mr. Johnson on his return, bringing letters from the Council and Chief Justice of the State to the Sheriffs and Justices, requiring them to do justice to the settlers and give them the benefit of the laws of the State, and in the meantime to restore them to their possessions and property. A messenger was at once sent to Wyoming, requiring the parties there to desist from further hostile measures.

The Supreme Court met on the 25th, and Patterson, Moore, Shoemaker, McDaniel and about forty others, who had been most active in driving the settlers out, were indicted for riot, and warrants were issued for their arrest. The Sheriff, with a party, proceeded to Wyoming to execute his warrants, but the criminals shut themselves up in the garrison and refused the officers admittance, who returned to Sunbury without executing the warrants.

About thirty of the settlers collected together in the early part of June and encamped in the woods on Wilkes-Barre mountain, about three miles from the garrison, waiting for the Sheriff to execute his warrants. About the middle of June the Sheriff, accompanied by the Coroner, came to

Wyoming again, to execute his warrants, but was again prevented.

About the 20th of June Patterson gave the settlers leave to go into the settlement without arms and reclaim their effects, but a small party having gone there for that purpose, were set upon by a body of armed ruffians, dragged to the garrison, stripped, tied up, and cruelly beaten with iron ram rods, and sent back. The little party in the mountain were thus deprived of all resource or hope except in themselves. They were scant of provisions, having at times only a half pound of beef per day, and later, when the rye began to ripen, a half pint of pounded or ground rye in the bran. After about a month's stay in this retreat, named by them Fort Lillopee, they, on the 3d of July, took possession of three empty houses in Kingston, compactly situated on Abraham's creek, where they were able to get milk and some other necessities from the people of the neighborhood.

They numbered at this time a force of eighty-two men, all told. Before leaving Fort Lillopee, they sent Benjamin Harvey express to the Sheriff at Sunbury, to learn what might be expected in reference to the execution of the warrants in his hands against the rioters. The Sheriff sent him with letters, setting forth the facts, and his inability to execute the warrants, to the Executive Council and the Chief Justice at Philadelphia. Failing in getting any positive information or promise of relief, he returned and informed his friends of the state of affairs, when they concluded to await the further development of events.

On the 20th of July, Major Joel Abbott was sent with twenty-three men to inspect their grain at Shawnee, now fast ripening, which they thought of harvesting.

Patterson, learning of their march, sent thirty-three men to intercept them, under command of Justice Shoemaker. Abbott fell into their ambush in a thicket of brush and timber near Shawnee, on Shupp's creek. One of his party, Elisha Garrett, fell instantly dead, and a second, Chester

Pierce, fell mortally wounded by the enemy's fire. Pierce was taken to the house of Benjamin Jenkins, on the east side of Ross Hill, where he suffered through the early part of the night, walking the house in great agony, and died before the next morning.

The fire of the enemy was returned, and with such spirit that they fled, leaving two of their party, Wilhelmus Van-Gorder and Henry Brink, badly wounded on the field of action. The enemy crossed the river and fled to the garrison. Major Abbott returned to his quarters with his party. The next day Garrett and Pierce were buried.

Elisha Harding, Esq., says: "We then began to work by Sampon's rule,—doing unto them as they did unto us. Starting out, we commenced our work at the first house we came to and turned out the inhabitants, and followed this up until we got to Nanticoke Valley, then crossed over and turning our course up the river, we drove all before us until we arrived at Wilkes-Barre, gathering in arms and ammunition wherever we could find them. We gave the people their choice either to go into the fort or through the swamp. We then went to Pittston and drove all down to the fort, giving them the same offer.

After we had succeeded in getting about all of them in the fort, we besieged it and kept them all in close confinement. This was on the 23d of July. The garrison was on the river bank and strongly fortified, mounting two four-pounders, two swivels, and a wall piece. Guarded by a number of out works with 200 men, at least three times our active number, armed only with small arms. We took possession of a height of land east of the town, and cut off their communication with the grist mill, a mile distant, which was guarded with twenty of the ruffians. At ten o'clock in the morning a demand was made for a surrender of the mill, giving the enemy two hours, before the end of which time they left, making their way through the swamp. We took possession of the mill and placed a guard of twelve men in it. At eleven o'clock we took possession of two out-

houses on the east of the town, from which we had driven the enemy. The night following we took possession of several empty houses on the second street south and southeast from the garrison, and about sixty rods distant. We kept up a scattering fire through the night.

On the next day, the 24th, the enemy commenced a heavy fire, which was returned to the best of our ability. At about one o'clock p. m. they set fire to the town and burned twenty-three of our dwelling houses, retreating to the garrison under cover of the fire and smoke. At two o'clock Capt. John Swift was detached with twenty-six men to take post on the west of the garrison. He attacked two of their houses near the bank of the river, guarded with ten men each, and pressed them so sharply that they fled to the garrison. A party of five men were detached to the other side of the river, to prevent their getting water therefrom. Thus we had them completely surrounded.

The next Sunday, the 25th, a scattering fire was kept up through the day and night, followed on the 26th with a fire from one of their four-pounders, mounted in a block house. William Smith was killed near Swift's quarters by a rifle ball from the block house. The fire continued in a desultory manner from both side on the next day—the 27th. Capt. John Franklin was slightly wounded by a rifle ball from the enemy's works. The fire decreased on the 28th, and we were at work preparing a machine to rout them from their post. A pair of wagon wheels were prepared with timbers, eighteen feet in length, to trail on the ground in the rear, extending over the axle forward of the wheels, which was loaded with straw, pitch-pine knots and other combustibles. At two o'clock next morning the machine was fully prepared and in motion. It was discovered by the enemy at twenty rods distance, when they commenced a heavy fire from the block house and garrison, with musketry and field pieces. The machine was, however, rolled against the block house, covering door and portholes, when it was set on fire. The guard in the block house all fled, except Lieut. Reed,

who, by means of a hand pry through a port hole, succeeded in prying the machine away from the house and thus saved it from destruction.

The firing continued through the day, the 29th, and one of our men, Nathan Stevens, was killed at Swift's quarters by a rifle ball entering a port hole. On the next day, the 30th, everything was quiet. Messrs. Thomas Hewitt, John Scott and McCord arrived at quarters from Northumberland, stating that they came by authority of the Executive Council and the Chief Justice of Pennsylvania, that the authority of Northumberland county would soon be at Wyoming, when we should be placed in our possessions according to law, that our property would be restored, etc. The next day, the 31st, a cessation of hostilities was agreed upon. In the evening we received authentic information from Northampton county by a Mr. Spencer, that Major Moore, Henry Shoemaker, Esq., and a Lieutenant-Colonel John Armstrong, who had left the garrison at the beginning of the siege, were on their march for Wyoming, accompanied by Wm. McDaniel, the New Jersey Tory, the grist mill party, and several Tories and other ruffians, to the number of forty, had marched as far as Locust Hill, where they were waiting re-inforcements. Thirty-five of our best men were detached, secretly, under Capt. John Swift, who marched at once. On Sunday, August 1, Robert Martin, Thos. Hewitt, Boyers, ——— Getting, and Daniel Mead, Esqrs., Justices of Northumberland county, arrived at our quarters. They asked us to lay down our arms, which we declined for the present. In the afternoon a prisoner, taken by Capt. Swift, was brought to our quarters, with a private letter concealed in a button of his coat, sent by Major Moore to Alexander Patterson, urging him not to surrender, as there was a strong party marching to his relief.

We remained quiet the next day, still keeping our lines, waiting to hear from Capt. Swift. At eleven o'clock at night Swift returned, giving information that he had fallen

in with the enemy at a block house at Locust Hill in Great Swamp, twenty-two miles from Wyoming, had an action with the enemy, killed several, one of them being Jacob Everitt from Sussex county, New Jersey, and dispersed the others. One of Swift's men, Dr. Miner, was slightly wounded. The news of the action at Locust Hill was made known on the 3d of August, and received with the strongest demonstrations of rejoicing. The siege was still maintained, and the Justices in the meantime were endeavoring to accommodate the difficulties and bring about peace and submission to law.

Our people were fearful of treachery and refused submission until the garrison should submit, but we finally made our submission by laying down arms, when the garrison still refusing, we were directed to take up our arms again, and defend our rights until the legal power of the Commonwealth should be sufficient for that purpose—that they would have the Sheriff of Northumberland come and disarm the garrison, and that Patterson and the leading characters of his party should be taken and removed from the settlement. In making a report to the Council they say: "We are convinced that, had it not been through the cruel and irregular conduct of our own people, the peace might have been established long since, and as well the honor and dignity of government supported."—*Pa. Ar.*, 1783-6, 630.

The settlers had now, 6th August, 1784, succeeded in driving their enemies into garrison, where they were keeping them closely confined; had succeeded in defeating a reinforcement coming to their aid, and had the solemn pledge of the Northumberland Justices, that the infamous Patterson and his party should be expelled from the valley; that they themselves should have the protection of law; their property and rights be restored to them, and they therefore rejoiced over the happy situation of affairs wrought out by themselves when all other help failed.

Hence the *feu de joie*! Hence the rejoicing!

APPENDIX.

A.

NOTE I.

On the 12th of March, 1664, King Charles II, by letters, patent, granted to his royal brother James, Duke of York and Albany, "Hudson's river and all the land from the *west* side of Connecticut river to the *east* side of Delaware Bay, &c."

The duke sent a squadron under Colonel Richard Nicholls, to secure the gift, and on the 3d of September following the red cross of St. George floated in triumph over the fort of New Amsterdam, which was thenceforward known as New York. Before taking possession, to-wit, on the 26th of August, Commissioners had been appointed on the part of Colonel and Lieutenant-Governor Nicholls, to meet those of the Dutch, to settle terms of surrender. On the next day, August 27th, 1664, articles were drawn up and signed by the Commissioners on both sides, and on the 8th of September ratified by Stuyvesant, the Dutch Governor. Sir Robert Carre thereupon, on behalf of the Duke, proceeded to the Delaware river to receive the submission of the inhabitants, Dutch and Swedes, on Delaware bay and river. The result was a capitulation, when articles of agreement were entered into on the 1st of October, 1664, between Sir R. Carre, Knight, and the Burgomaster of the Dutch and Swedes.

The second of those articles provides "That whoever, of what nation soever, doth submit to his Majesty's authority, *shall be protected in their estates, real and personal* whatsoever, by his Majesty's laws and justice."

Nicholls remained Governor of the Duke's possessions until 1667, when he was succeeded by Colonel Francis Lovelace, who exercised the duties of that office until August 12th, 1673, when he was succeeded by Anthony Colve.

Some doubts having arisen whether the changes in government from English to the Dutch, and back again to the English had not impaired the Duke of York's title, and the grants made by him under it,—to prevent difficulty and remove all doubts, new letters patent, on the 9th of July, 1674, were issued by his Majesty the King to his brother, the Duke, in nearly the same words with the former grant, conveying to him the same portion of territory.

Two days after receiving the new patent, the Duke commissioned Major Edmund Andross Governor over the whole country, "from the west side of Connecticut river to the *east* side of Del-

aware river and bay, embracing what of New Jersey had been previously granted to Berkely & Carteret."

On the 31st of October, 1674, Major, now Sir Edmund Andross, arrived in this country and entered upon his office as Governor under the Duke of York, and soon after issued a proclamation "*confirming all grants for land theretofore made*, as well as all judicial proceedings had previous to his arrival." He also confirmed the Duke of York's book of laws for his province—the same lately published by the State of Pennsylvania.

The promotion of Major to Sir Edmund Andross, and to the Governorship of the Duke of York's territories in America, with the Duke his patron, probable successor to the crown, so exalted Sir Edmund, that he recognized no bounds for the exercise of his authority. Although the western limit of his territory as Governor, as well as that of the Duke's grant, was Delaware river and bay, he did not hesitate to pass these bounds and regulate trade and sell and convey lands west of that boundary.

On the 26th of February, 1671, Andross confirmed a patent granted by Lovelace, when Governor, to Robert Tallant, for 400 acres of land on the east side of Apoquinimy creek, and reciting divers mesne assignments thereof, down to Bazaliel Osburne, in fee "Quit rent reserved to the Duke of four busheis of wheat." This is the first grant made by Andross. It is recorded in New York in Breviat 42.

The next conveyance I shall refer to is of more significance in its bearing on the case in hand. On the 25th of March, 1676, "Edmund Andross, Esq., Lieutenant and Governor-General under his Royal Highness, James, Duke of York and Albany, &c., of all his territories in America," conveys by deed "a certain parcel of land called "Hartsfield," lying and being on the west side of Delaware river at ye lower end of Cohocksink Creek, to Jurian Hartsfielder, containing and laid out for 350 acres, he yielding and paying yearly to said Duke three bushels and a half of good winter wheat." On the 15th of March, 1680, Jurian Hartsfielder assigns said deed to "Hannah, ye widow of Henry Salter, deceased, excepting one hundred acres out of ye same. Anna Salter assigns all her right, interest, &c., to Daniel Pegge." This is the ground on which now stand the Northern Liberties of Philadelphia. On the 4th of March, 1681, the country west of Delaware river, between certain bounds was granted by Charles II. to William Penn, with power of government. He soon after repaired to and took charge of his purchase. On his arrival he found a large number of settlers on his lands, and among the rest Daniel Pegge, on this tract of land called "Hartsfield" on the Cohocksink creek and Delaware river. Instead of attempting to

disposes the settlers, although they had a deficient title, and in some cases none at all, he took the better and more peaceable and honorable part, and confirmed the settlers in their titles, not by compelling a surrender of those titles, but by endorsement upon them. This Hartsfield lot was confirmed by him to Daniel Pegge, or Peage, as of our manor of Springett, on the "six and twentieth day of ye first month in ye year 1684." It will be found of record in Patent Book A, No. 4, in the office of the Surveyor-General of Pennsylvania.—*See Hazard's Annals of Penn.*, p. 424.

Had the same policy employed in these cases been employed toward the settlers at Wyoming, the bloody scenes of the Pennamite war, and its attending atrocities, would never have tarnished the history and statutes of Pennsylvania.

NOTE 2.

PENNSYLVANIA—VIRGINIA.

In an act of the Legislature of Pennsylvania, 1st April, 1784, *Carey & Bioren's Laws*, Vol. II, p. 495, it is recited "That although the conditions annexed, by the Legislature of Virginia, to the ratification of the boundary line agreed to by the Commissioners of Pennsylvania and Virginia, 31st of August, 1779, may tend to countenance some unwarrantable claims which may be made under the State of Virginia in consequence of pretended purchases or settlements, pending the controversy. Yet this State determined to give the world the most unequivocal proof of their earnest desire to promote peace and harmony with a sister State, so necessary during this great contest against the common enemy, [singular language to be used after that contest was over and peace concluded, more singular in view of their conduct toward the settlers at Wyoming,] do agree to the conditions proposed by the State of Virginia, * * * that the private property and rights of all persons acquired under, founded on, or recognized by the laws of either country, previous to the date hereof, be secured and confirmed to them, although they should be found to fall within the other, and that in the decision of disputes thereon, preference shall be given to the elder or prior right, whichever of the said States the same shall have been acquired under." * * *

Had the principles of justice, here recognized and acted on, been practiced toward the settlers at Wyoming, the names of Armstrong, Boyd, Christie, McDaniels, Patterson, etc., would never have polluted the history of the fairest and loveliest spot on earth.

NOTE 3.

MARYLAND—VIRGINIA.

The territory of Maryland, granted by Charles I. to Lord Baltimore in June, 1632, was described in the grant as "That region bounded by a line drawn from Watkin's point on Chesapeake Bay to the ocean on the east; thence to that part of the estuary of Delaware on the north, which lieth under the forty degrees, where New England is terminated; thence in right line by the degree aforesaid to the meridian of the fountain of the Potomac; thence following its course by its further bank to its confluence."

The territory granted to Lord Baltimore was undoubtedly within the charter limits of Virginia. See *1st Charter of Virginia of April, 1606, Sec. 4, and the 2d Charter of May, 1609, Sec. 6*. Marshall says that this grant to Lord Baltimore "was the first example of the dismemberment of a colony, and the creation of a new one within its limits by the mere act of the Crown," and that the planters of Virginia presented a petition against it, "which was heard before the Privy Council of England in July, 1633, when it was declared that Lord Baltimore should retain his patent and the petitioners their remedy at law." See *Marshall's Life of Washington, Vol. I, chapter II, p. 78-82, 1st Edition*.

This is not the last example of the dismemberment of a colony, and the creation of a new one covering the same territory. What would appear to be strange in regard to these conflicting grants, is the fact that the Crown never interposed to settle any difficulties growing out of them, although frequently requested to do so. While in law, the world over, a grant of land by the owner passes the title from him, so that he has none to grant or pass to a second person, and the first grantee will hold the land or thing conveyed, it seems ever to have been taken that a second or subsequent grant by a king was better than the first. The only reason for it is that a reigning monarch making a grant and having all his officers under him mere tools to carry out his wishes, will sustain his grant in preference to that of his predecessor, particularly if he has received the consideration for it. The adage, that a live dog is better than a dead lion, applies to kings as well as dogs. A live king is greater, and rather to be obeyed than a dead one.

B.

ELECTION AT NORTHUMBERLAND, SECOND TUESDAY OF OCTOBER, 1783.

Protest of the minority in the Legislature of Pennsylvania:

WE, whose names are hereto subscribed, considering the security of elections the only safeguard of public liberty and the peace of the

State, do protest against the determination of the House on the Northumberland election, for the following reasons:

We conceive that the twenty-four votes set aside as illegal were given by legal voters, inasmuch as the persons giving the same were in fact in the government (though not in the territory) of Connecticut, which exercised a full jurisdiction over them until the decree of Trenton. We observe, that allowing it to be Connecticut, as was contended, until the decree of Trenton, then they may be deemed persons coming from another State, who, producing certificates of their having taken the oath to such State, become by law entitled to vote; that it was proved that they had done this. Of this construction we apprehend there is clear and express precedent in the case of the inhabitants of Westmoreland and Washington counties, on the settlement of the Virginia line, who were admitted to vote, immediately as persons coming from another State.

We cannot but lament the fatal policy which, instead of conciliating these people, and adopting them as our subjects and citizens, and endearing them to us in political bands, we are straining the laws against them and making such difference between them and the adopted inhabitants of Virginia, and hold ourselves clear of the consequences which must flow from such ill-advised proceedings, which, in our judgment, has a strong tendency to revive the dispute, which they may yet do, under the articles of confederation, and drive them back to the jurisdiction of Connecticut, which will be more willing to receive them and renew the old claim, when they find the actual settlers excluded from the common privileges of citizens of this State. Therefore we wish it to be known to our constituents, and to the world at large, that we have borne our testimony against the determination of this body on said election.

[Signed by twenty members of the minority and entered on the journal of the House.]

C.

PENNAMITE WAR.

Report of the Committee to investigate the conduct of Alexander Patterson and others at Wyoming:

DEBATE IN THE HOUSE ON THE REPORT—1784.

The report was first read on the 19th of March, and again on the 31st. The motion for a further postponement was objected to by a number of the members, who called for a reading of the depositions. Col. Daniel Clymer, from Berks county, took up the deposition of Robert McDowl, which he read in his place, and remarked:

"There is evidence enough in that alone to show that Alexander

Patterson ought to be removed from his office as Justice of the Peace." He urged the reading of all the depositions. This was opposed by several, especially by the Speaker of the House.

Robert Brown, of Northumberland county, said "he was certain that no member of the House could imagine him to be in the interest of the people at Wyoming, beyond the bound of truth and a desire to do justice. He had visited Wyoming as one of the Committee appointed upon the subject, and had heard all the evidence on both sides. The wrongs and suffering of the people of Wyoming, he was constrained to declare, were intolerable. If there ever was a people on earth deserving redress, it was these people. Let the depositions now lying upon your table be read, and afford the House, if it really wishes to do justice in this case, an opportunity of learning the facts and acting advisedly."

The House seemed about equally divided upon the question of postponement, when Speaker Gray stated that Mr. Patterson having found himself acquitted by the report of the committee, had gone home. The session was drawing near the close. The House has much business yet to dispose of, and if it was taken up in reading the depositions, other business of more importance must be laid over. He closed by announcing the postponement agreed to, without putting the question to the House, or any vote to that effect.

A SHORT SKETCH OF THE INDIAN TRAILS OF PENNSYLVANIA.*

BY GEORGE P. DONEHOO, of Coudersport, Pa.
Secretary Pennsylvania Historical Commission.

I wish it to be understood at the commencement of this address that I do not expect to cover the entire theme of the Trails of Pennsylvania in anything like an exhaustive manner. It would be impossible for me to attempt to do so in one evening's talk. Just as impossible, in fact, as it would be for me to attempt to give a history of all of the roads and highways of the State which have been used by the white man.

In order to rightly understand the material which I wish to present, the hearer must be somewhat familiar with the main facts concerning the history of the Indian tribes which occupied the region now included in the State of Pennsylvania, and also with the physical geography of this most historic region.

The relative positions of the habitats of the tribes and of their villages, as well as those of the hunting and fishing grounds, had much to do with the general directions of the trails.

The mountain ranges, valleys, rivers, creeks, in fact all of the topographical features of the country, had a great deal to do with the courses followed by the trails from one point to another. As much, if not more, these features have influenced the course of highways and railroads.

It may be said, broadly speaking, that the present railroad map of the State is a fairly good map of the system of Indian trails, or more properly "roads", which once threaded it in a winding and interlacing network. There is hardly a railroad in the State which does not follow the course of a former trail of the Red Man. In fact, there is hardly a

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highway in the entire State which does not follow, in the main, the course of one of the Indian trails. The Indian warrior or trader or hunter knew as well as the most trained engineer the best course and the most direct one from one point to another. So well did the Red Man lay out his course from one watershed to another and from one valley to another, through the various mountain gaps and over the divides, that when the white man surveyed the course for his trail of steel, he followed, almost without exception, the exact course of the old Indian road.

It seems somewhat strange that the best course for the Indian hunter or trader, who travelled on foot, was also the best course for the white man who travelled on horse-back, in coach, in Pullman or automobile. Conditions have changed so greatly that one would imagine that better highways could be discovered. But, such is not the case. The modern limited speeds over a course which was laid out centuries ago by the Indian warrior or hunter. The up-to-date touring car glides over a highway the course of which was trodden by the feet of the Red Man for countless generations. In some cases where the railroad or highway departs from the course of the old Indian trail, it does so without any real advantage. In many cases the railroad or highway has been turned back to the exact course of the trail—on account of snow drifts in winter and wash-outs in summer. The Indian, the trader's pony, the horse of steel all need the same thing to keep them going. The throbbing locomotive needs water to keep it alive, no less than did the Indian or the trader's pony. The modern railroad which does not pass near a good water supply is obliged to conduct water to its course. Several Indian trails of more ancient times were obliged to be abandoned because of the absence of water, and the consequent absence of game. Water is one of the absolute necessities of savage and of civilized man. His food supply is dependent upon its presence. The savage could not live where there was

no water, not only because he needed the water, but also because there was no game save where there was water. Modern industry and civilization would come to a stop without water. The savage, or primitive man, built his villages along sparkling streams of water, just as the white man has built his cities and town along rivers and his villages and hamlets along creeks and runs.

Nearly all of the Indian trails took into consideration the following physical features: The kind of ground, the grade and the water supply. Solid ground was always taken in preference to ground which was swampy, whenever such was possible. Gaps through mountains were always taken rather than steep ascents over high ridges. Paths ran from one water-course to another, or from one spring to another, often going out of a direct course in order to reach these. These factors being taken into consideration, the most direct course between points was always chosen. Where possible, a trail kept to the high ground along a ridge, in order to avoid the floods and soft ground during the spring and fall, and the snow drifts during the winter. Some of the present highways and railroads are almost impassable in winter because of the deep snow in the cuts which have been made in order to have a more direct course to a given point. The Indian sought the direct course, but where the direct course meant deep snow, he took the more round about way. Of course deep cuts and defiles were avoided in war times and on war paths because of the danger of ambush. However, in a region where there was no danger from hidden foes and where a cut through a narrow valley made a great saving in distance, the creek defiles were used during the summer season. For this reason one trail was used in the winter season and another trail in the summer time. I have been over several such summer and winter routes. One is on the Catawba Trail near the historic Stewart's Crossings, where one trail runs down to the Youghioghenny river through the valley of Robinson's Run. The other trail

follows the high ground along a ridge near Gist's Plantation, reaching the river at the mouth of the run. In the summer the trail down the valley is the better and in the winter the trail on the ridge is almost clear of snow, while the trail in the valley is almost filled with snow drifts. Another good illustration is found in the forking of the trails leading to Fort Duquesne.

The Indian could thus change his highway to suit conditions. The confusion in various authors concerning the course of the main Indian trails is due in some measure to the fact that the same general trail is often divided into two or even more trails, at various points. A part of the Main Trail was abandoned for the time being because of deep snow, floods, soft ground, or danger of ambush. The difference in the courses of these Main Trails are shown in the various "Journals" of the early traders, missionaries and explorers.

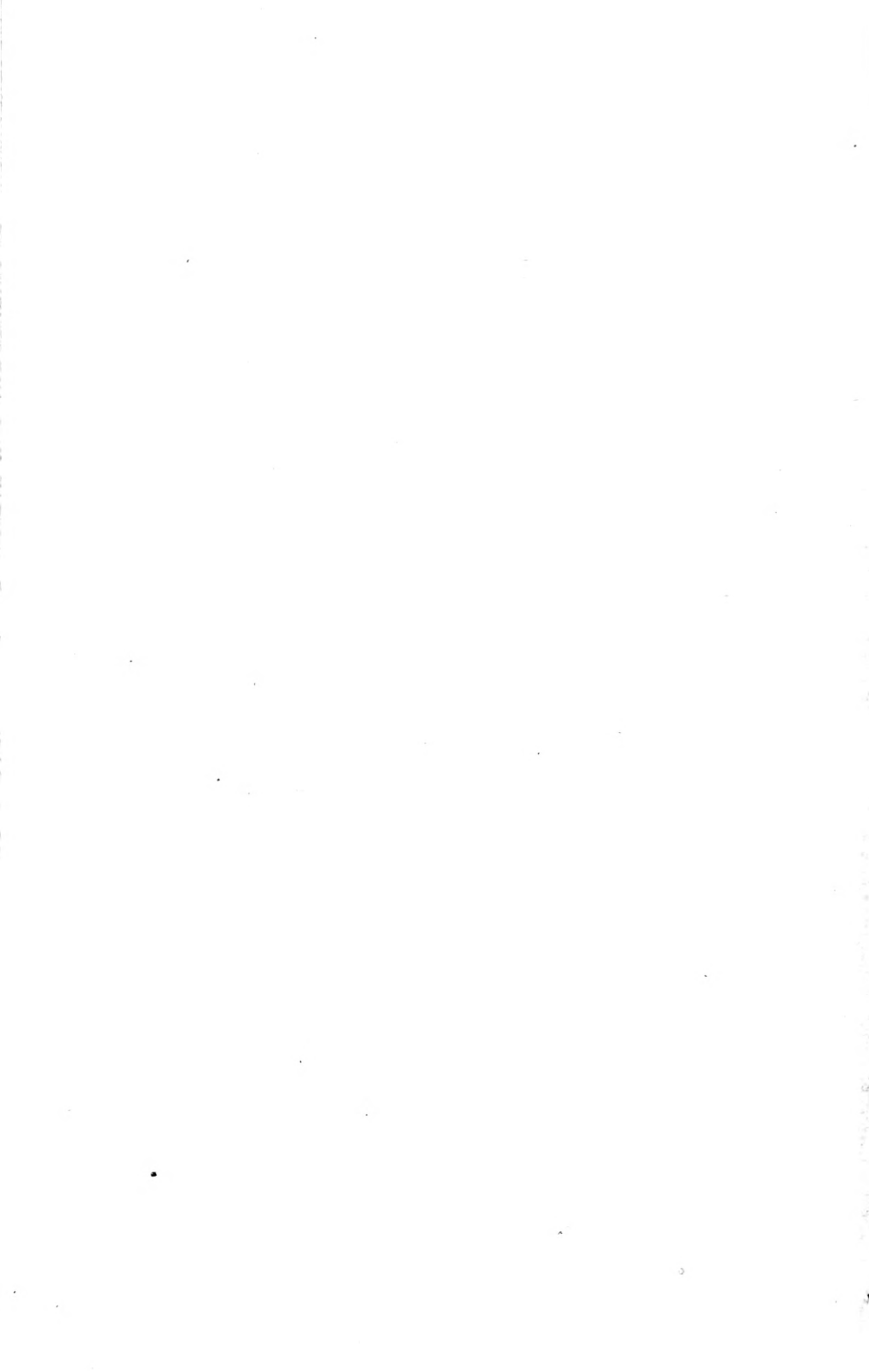
THE TRAIL SYSTEM OF PENNSYLVANIA.

The three great river systems of the State of Pennsylvania—the Delaware, Susquehanna and Ohio—with the upper Potomac, might be called the main arteries of the system of trails of the State. The most prominent points on all of the trails were on these streams, and as a consequence, all the trails led along them or to them. The various "Forks" on these streams, where two main tributaries met, were sort of focal points, towards which all main trails led. The "Forks of the Delaware", at Easton; the "Forks of the Susquehanna", at Athens and Sunbury; the "Forks of the Ohio", at Pittsburgh; the "Forks of the Potomac" at Cumberland, Maryland, and the various points where a large creek flows into a river are all illustrations of this fact.

For this reason all of the large Indian villages in the State, with the single exception of Logstown, were situated at the "forks" of two streams. The names of these villages in most cases had reference to their situation, Lechauwekink



Trail along the Potomac, now the course of a Highway and Canal.



(Easton), Tioga (Athens), Deondega (Pittsburgh). All of which signify "at the forks".

These villages together with Caiuctecuc, on the Potomac, Pequea, Conestoga, Shamokin, Wyoming, Sheshequin, and other villages on or near the Susquehanna; Kittanning, Venango, Conewango, Chartiers Town, Logstown, Sacunk, on the Allegheny and Ohio; Kuskuski, Shenango and others on the Beaver, and the various villages on the Delaware, Schuylkill and Lehigh were all united by a system of trails. All of the large cities and towns, without an exception, occupy the sites of former Indian villages, which were as important trail centres as these cities and towns are now railroad and highway centres.

To give a comprehensive and scientific address upon the Trails of the State would include a history of the importance of these various Indian villages and of the commerce which was carried on between them. Such is impossible.

The Indian Trails may be roughly classified as Hunting Trails, Trading Trails and War Trails. Of course some of the trails were used for all of these purposes. But, as a general rule the classification will hold good.

The Trading and the Hunting Trails as a rule ran east and west, and the War Trails ran north and south. The reason why the hunting and the trading trails ran east and west was because of the situation of the various tribes to the hunting grounds and the trading points, as well as because this was the general direction of the migration of the various tribes as they were driven from the coast region. These tribes were followed by the traders who went westward to trade with the Indians, who had been their customers in the east. The old Hunting Trails which had been used by the Delaware and Shawnee between the Delaware and Susquehanna and the Ohio and Muskingum, then became the trading trails over which passed the pack-horses of the Indian traders.

The reason why nearly all, if not all, the War Trails ran

north and south was because the northern Indians, comprising the Delaware, Shawnee and Iroquois, had been at war with the southern Indians, the Catawba and Cherokee "since the world began", according to the statement of the Iroquois chiefs. This war continued until all of the Indians had been driven out of the region east of the Ohio river by the white settlers. Even after the establishment of Fort Pitt the Iroquois frequently went on their raids southward by way of the Allegheny and Monongahela rivers. There were no war paths running east and west because the Iroquois had practically overcome all of the tribes as far westward as the Mississippi river. The trail used in these expeditions against the western Indians was along the southern shore of Lake Erie or down the Allegheny and Ohio rivers.

THE WAR TRAILS.

The time when the war of the northern tribes with the southern tribes commenced cannot be fixed with any exactness. It was, doubtless before the formation of the League of the Iroquois, when the various Iroquoian tribes were carrying on their destructive wars with each other. It may have been due to the conditions which led to the expulsion of the Talligewi (Cherokee) from the upper waters of the Ohio. The Catawba were probably driven southward at the same time. It is now generally accepted that the tribes mentioned once occupied the region at the headwaters of the Ohio river, and that they were driven from it by the Iroquois.

The same conditions which led to the wars of the Iroquois with the Erie, Neuter, Wenro and Andaste (Susquehanna), probably led to the driving out of the Cherokee and Catawba. The fact that the Delaware and Shawnee, of the Algonkian family, were engaged in this war on the side of the Iroquois would seem to indicate a commencement of the hostility before the expulsion of the Talligewi from the Allegheny river.

The dispersion of the Talligewi and Catawba from the upper Ohio, the eastward migration of the Delaware and the northward and eastward migration of the Iroquois was probably due to the same causes which lie back of all such movements of humanity—the increase of population above the food supply and the necessity of seeking new fields for hunting and fishing. The stronger people will not only drive away the weaker but commence a war of extermination, as well as of conquest. The war will go on even after the original cause has been removed or forgotten.

The Cherokee and Catawba were driven southward; the Delaware migrated eastward to the river where they were living when the continent was discovered, and some of the Iroquoian tribes occupied the region along the Juniata and Susquehanna rivers, while the main body of the Iroquoian tribes settled in the region in western New York and Canada. The time, or the order of these migrations cannot be stated in exact terms.

At the time of the commencement of the historic period the Ohio and Allegheny rivers were under the domination of the Iroquois; the Susquehanna, including the West Branch, under the control of the Susquehannock, or Andaste, and the Delaware and its various tributaries, under the Lenni Lenape, of the Algonkian family.

The Iroquois of New York were at war with all of the Iroquoian tribes to the south of their habitat, including the Erie, the Wenro, the Neuter, the Andaste, the Cherokee and the Siouan tribe the Catawba. The Shawnee had not then entered the boundaries of the State. The war between the Iroquois and the Lenni Lenape had ended when the latter became "women" with no right to bear arms. The Delaware and the Susquehannocks were at peace with each other, and there were then no tribes living on the Ohio river. For these reasons all War Trails led southward from the Iroquois country.

The formation of the Iroquois Confederation, about 1570,

gave to the Five Nations of the Iroquoian group a power which was overwhelming to all of the other Indian tribes. The war parties of the Five Nations went westward along Lake Erie and southward along the Allegheny and Ohio to the Carolinas and to the Mississippi, carrying death and ruin to all of their foes. They conquered, or blotted out, of their related tribes, the Erie, the Wenro, the Neuter and the Andaste. The Cherokee were spared the fate of these other tribes simply because the development of the Anglo-Saxon civilization on the continent placed white settlements between the two peoples.

The Iroquois Confederation was developing into a nation, in the civilized sense of the term, when its development was arrested by the white man's domination of the continent. It had reached about the same stage of development as that of the Scottish Clans, before the dawn of the history of modern Scotland. Had the development of the Iroquois Confederation gone on, without external interference of the Anglo-Saxon culture, it no doubt would have ultimately produced a Nation of the type of the ancient Nations.

HUNTING AND TRADING TRAILS.

It is evident that trade was carried on between the Indians of widely separated regions long before the coming of the white man. Articles of copper, obsidian, shell, etc., have been found in mounds far distant from the places where these materials belong. Various copper artifacts have been found in the ancient Andaste burial mounds on the West Branch of the Susquehanna. The Iroquois were familiar with the country as far west as the Black Hills of Dakota, and there is little doubt but that they had gone as far south as the mouth of the Mississippi. It has been stated that the Algonkian tribes journeyed from the Atlantic seaboard to the mountains of Montana.

There was a sort of inter-tribal law for the protection of these agents of commerce, even during war times.

When John Smith explored the lower Susquehanna in 1608 he found the Susquehannocks in possession of articles which had evidently been obtained in trade with the Indians of the Lake Superior region, as well as articles which had been obtained from the Dutch traders about Albany.

The early Dutch and Swedish settlements on the Delaware carried on a trade with these Susquehanna Indians, whom they called Minquas, as soon as these settlements were made.

The Great Trunk Line Trails, as they may be called, which ran from the Atlantic to the Pacific, and from the Gulf of Mexico to Saskatchewan were all connected with the Great Trails of Pennsylvania. For example, the trail from the Delaware to the Ohio, joined the Great Trail which ran down the Ohio river. This connected with the Warriors Trail which ran through the Cumberland Gap and with the Natchez Trail which ran southward through Nashville to New Orleans. The overland trail from Nashville to Pittsburg ran through Chillicothe and Zanesville. This "Natchez Trail" was long used by the traders and boatmen returning to Pittsburg from New Orleans, long after the Indians had ceased to use it.

The Great Trail down the Ohio river also had connection with the Santa Fe and the Oregon Trails. It was, therefore, possible for the Indian trader to go from any point on any of the trails of Pennsylvania to any point on any trail on the continent. Just as much so, in fact, as it is possible now to reach any point on the continent over the railroads which run from Philadelphia or Pittsburgh, or from any point on any railroad connecting with the trunk lines.

To give an account of all of the connections and branches of the main Indian trails of this State would be, therefore, as difficult as to give a complete outline of all of the branches of the main railroads in the same region. The Iroquois Trail from the Genesee valley, the Delaware Trail from the site of Philadelphia, as well as all of the other main trails

from the upper Delaware, Susquehanna and Allegheny rivers connected these regions with every other part of the continent, just as truly as do the present trails of steel.

When the white man came to the continent these Indian paths soon became the beaten paths of the traders, who followed the Red Man to his villages on the Ohio, the Mississippi, and even the distant shores of the Pacific.

TRAILS FROM THE DELAWARE TO THE SUSQUEHANNA.

It is a difficult matter to tell which trail was first used between the Delaware and the Susquehanna rivers. No doubt the Indians passed between these streams long before the coming of the European in their trade with each other. It would seem that the trails from the upper waters of the Susquehanna to the headwaters of the Delaware, and thence to the Hudson, were used by the Susquehanna Indians, called Minquas by the Dutch, long before there were any Dutch or Swedish settlements on the lower Delaware. The Susquehannocks mentioned by John Smith in 1608, were evidently carrying on a trade with the Dutch on the Hudson, as he was told by the Nanticokes that the iron hatchets which they had had been obtained from the Susquehannocks. It is possible that the Susquehannocks obtained these from the Dutch traders on the Hudson river. If so, they had probably gone over the trail from the upper Susquehanna river to the Delaware, near Cochection, and from thence to Esopus (Kingston) by way of the trail which was later used by the Dutch and which was later known as the "old mine road". This trail followed the Mamakating Valley, north of the Shawangunk mountains, and the valley along the Mackhackemack (Mohawk) Branch of the Delaware into the Minisinks. From there the trail ran westward to the Susquehanna at Wilkes-Barre. The author is of the opinion that this trail was used by Arnold Viele in 1692-94, when on his way to the Ohio river, and by which he returned with the Shawnee who settled along the upper

Delaware. Viele was a Dutch trader from Albany, and would doubtless take the trail which led southward from the present Kingston to Cohecton on the Delaware. This trail ran westward from Cohecton, through Little Meadows, across the Moosic mountains to Capouse (Scranton) and thence to Wyoming. This trail seems to have been the first westward trail across the present State of Pennsylvania to the Ohio river. It was also probably the course followed by the "Black Minquas", from the Ohio, in their trading with the Dutch. The Wenro were associated with this unidentified tribe in carrying on this trade. The Wenro at that time occupied the upper waters of the West Branch of the Susquehanna, and the "Black Minquas" the upper waters of the Ohio and Allegheny. The natural route for both of these tribes would be across the watershed from the Allegheny river to the West Branch and then down to Sunbury and from thence by the old trail to Wyoming (Wilkes-Barre) and then across to the Delaware by the trail through the present Scranton, or by the trail leading to the Water Gap. The Connecticut settlers followed this trail from the Hudson river to Wyoming when that region was first occupied by the white man. They would naturally follow the most direct and the most used course. Such has been the course followed in the settlement of all parts of the State—the old Indian trails becoming the route followed by the frontier settlers. Minisink, in New Jersey, was one of the oldest and most prominent Indian villages near the Delaware. The trail westward from this village westward, ran across Pike county to the headwaters of the Lackawanna, and then down that stream to the Susquehanna and on through Wyoming. Another trail ran westward from the Delaware Water Gap to Wyoming. A branch of this trail ran southward to Easton, at the "Forks of the Delaware", through the Wind Gap. This branch, with the main trail to Wyoming, was that which was used by the army of General John Sullivan in 1779. It joined the trail from

the Delaware at the former Indian village of Pechoquealin, about twenty-eight miles north of Easton. The route from Easton, or the "Forks", to Wyoming was about as follows: Up Bushkill creek to the foot of Blue mountains, near Hellerville; through the Wind Gap to Saylorsburg, on to near Tannersville (which was on the trail from the present Stroudsburg) over Pocono mountain, near Hungry Hill, Monroe county; through the Great Swamp to Burnt Plain, or Barren Hills, Luzerne county, twelve miles from Wilkes-Barre, and thence to Wyoming. The distance from Easton to Wyoming by this route is sixty-five miles. A very good map of this trail is given in "General John Sullivan's Indian Expedition of 1779", published by the State of New York. It was drawn by Benjamin Lodge, the surveyor of the expedition.

The trail at Easton, at the mouth of the Lehigh, was joined by the trail which led to the present Bethlehem, where it joined a number of trails leading to the lower Delaware, to Sunbury, as well as the trail leading to Harris' Ferry (Harrisburg). The various trails which intersected at Bethlehem are said to have been the reason why the name Lechau, "Forks", was given to the region and then to the river (Memorials of the Moravian Church, I. 23). The name, however, was that which was applied to the forks at Easton, and was later applied to the river and the region between the "forks". One branch of the trail from Bethlehem ran northward through the Wind Gap, where it joined the trail from Easton to Wyoming and to Stroudsburg. This was a part of the course followed by Zinzendorf in 1742 (Journal of Zinzendorf, in Memorials of the Moravian Church, I. 23-28). Another branch of this same trail ran northward or northwestward, to Weissport, or to the old Indian village of Meniolagomeka. This trail was frequently used by the Moravian Indians in passing from Bethlehem to Philadelphia. Another branch ran almost due south to Philadelphia, and another branch southwest to the mouth of

Maiden creek, on the Schuylkill river, north of the present Reading, joining the trail to Tulpehocken and to Harris' Ferry. This trail was frequently used by Conrad Weiser in his trips to Paxtang, near Harrisburg, and a part of it was used by Bishop Cammerhoff in his journey to Shamokin (Sunbury) in 1748. Cammerhoff went to Shamokin from Harris' Ferry by the trail leading along the eastern shore of the Susquehanna, but returned to Bethlehem by the trail leading across the country from the mouth of Mahanoy creek. This trail is noted on Evan's map of 1749 and on Scull's map of 1770. It was frequently used by the travelers to Shamokin, as well as by the Indians in their raids into the Tulpehocken settlements after 1755.

I have gone somewhat into details concerning these trails from the upper waters of the Delaware and Susquehanna to show what I think is true concerning the trail followed by Arnold Viele in 1692 as being the oldest trail from the Delaware to the Ohio. According to the legend on the maps of John Smith's explorations in 1608 the Wenro and the "Black Minquas" were then carrying on the trade with the Dutch on the Hudson, which was reached by the trail from the upper waters of the Allegheny by way of the West Branch and the Wyoming Valley. Stephen Brule made his trip down the Susquehanna from Carantouan in 1615-16, and was probably the first white man to pass through the Wyoming Valley. If there were others, they have left no record. Arnold Viele was the first white man to pass through the Wyoming Valley over the trail leading westward to the Ohio.

The trails from the lower Delaware to the Susquehanna were used by the Andaste (Susquehannock, Conestoga, Minqua) in travelling to the villages of the Lenni Lenape on the Delaware long before the settlements of the Dutch and Swedes. From 1630 the Swedish settlers on the Delaware carried on an extensive trade with the Susquehanna

Indians, who reached the trading posts on the river by various trails. These trails ran from the mouths of Octorara, Conewago, Pequea and Conestoga creeks to the headwaters of White Clay, Brandywine, and Chester creeks and to the Schuylkill river. One of the earliest and most used trails was that which ran from Conestoga, near Lancaster, up Conestoga creek to near its headwaters and then across to French creek and down that stream to the Schuylkill. An overland route from the same point followed, in the main, the present highway from Lancaster to Philadelphia. In 1717, when John Evans, the Governor of the Province, visited Conestoga, he went over the trail from New Castle to the mouth of Octorara creek, then up the Susquehanna to the mouth of Pequea creek and up that stream to Conestoga—after a visit at Dekanoagah. In returning they went to Paxtang and then back to Philadelphia over the trail leading through Tulpehocken. (Colonial Records, II 385-90).

The main trails from the upper Delaware were directed toward Wyoming and Tioga Point, and the trails from the lower Delaware towards Conestoga and the various villages at the sites of the present Pequea, Octorara, Columbia, Bainbridge and Harrisburg. As Conestoga was the chief Susquehanna village on the eastern shore of the lower river, before the advent of the white man, it was no doubt the chief point towards which all of the trails on the lower Delaware led.

The Susquehannock Indians were familiar with the site of Shackamaxon, which was evidently a meeting place long before William Penn landed upon the shores of the Delaware. The "Minquas" (Susquehannocks) met the various "river Indians" (Delaware) at this place in 1677 to make peace with the Iroquois (Records of the Court at Upland, 49). A number of trails led from the lower Delaware to the Potomac and southward.

TRAILS FROM THE UPPER SUSQUEHANNA, WESTWARD.

1. *The Tioga Trail.* The most northern trail from the Susquehanna over the Allegheny divide was a branch of the Warriors Trail, which ran up the eastern shore of the Susquehanna from Wyoming (Wilkes-Barre). It left the Susquehanna river at Tioga Point, following the Chemung river along the northern shore to Painted Post, near Corning, where it crossed the river and ran southward along the Tioga river to the mouth of the Cowanesque, near Lawrenceville. From this point it ran up the northern shore of the Cowanesque to the divide between the Allegheny, the Genesee and the West Branch, near the present town of Ulysses. The three branches of the Genesee, in Potter county, marked the course of the trails leading to the Seneca villages to the north along the Genesee river. The westward trail crossed the headwaters of the Genesee and struck the headwaters of the Allegheny near Raymond, and passed on down the river through Colesburg, Coudersport, Burtville to Port Allegheny, where it joined the trail leading from the Seneca villages along the Big Bend of the Allegheny river to the West Branch, near the present Emporium Junction, and ran on down to the Big Island at Lock Haven, where it connected with the trails leading up the Bald Eagle Valley and down the West Branch to Shamokin (Sunbury). The main westward trail, of the Tioga Trail, continued on down the Allegheny from Port Allegheny to Olean, and then on down the western shore of the river to Warren, Tionesta, Franklin, Kittanning and Pittsburgh. There were various fording places on the Allegheny river where the other trails leading from Venango, Kuskuski, on the Beaver, and other points eastward, crossed.

The trail from Tioga Point to the Allegheny was a "forbidden path" into the Seneca country, over which white men were not permitted to go. It was used by the Seneca in reaching the various branches of the Warriors Trail, by way of Pine creek, the Chemung river and other branches which

struck the main trail on the Susquehanna and the West Branch. John Hays and Christian F. Post reached the village called Passigachkunk, near Knoxville, in 1760, when on their way to the Ohio, but were here turned back by the Iroquois who said that white men were not allowed to pass over this trail (Archives of Penna. III 738-739). In 1767, when David Zeisberger was on his way to the mouth of the Tionesta, by way of this trail, he refers to the fact of this being a "forbidden trail" in his journals of the trip (Life and Times of David Zeisberger, 321-325; also, Zeisberger's Journals, of 1767-68, in Archives of Moravian Church, at Bethlehem). This trail was what might be called a war trail. It was never a trading trail to any great extent. The trail from Wyoming, up the Susquehanna was followed by the army of General Sullivan, in 1779, as far as Elmira, near which place the battle of Newtown took place. The course of this trail is very clearly outlined on the maps of Sullivan's Expedition. The trail from Tioga Point up the Chemung to Painted Post and down the Tioga river and then up the Cowanesque, was used by the hostile Indians during the entire period of the frontier wars, in taking captives to the various Seneca and Munsee villages. Captives were carried to these villages from the Cumberland valley, from the West Branch and from other points where raids had been made (Archives of Penna. III 44, 46, 56-57). Canadea, the most southern Seneca village on the Genesee, was the point from which many of the war parties started on their raids into the white settlements on the West Branch, Bald Eagle valley and other places along the frontier.

Charles A. Hanna, in the Wilderness Trail, says that this was probably the course followed by Arnold Viele in 1692, when on his way to the Ohio. This is hardly possible. Viele went from the upper Delaware over the trail to Wyoming and then down to Shamokin where he took the Shamokin Trail to Kittanning. This would be his shortest and

most natural course. To take the Tioga Trail was a much more round about and difficult course. The Tioga Trail was not used by white men until David Zeisberger went over it in 1767. One can see why Zeisberger took this course in order to reach the Tionesta. But there is no reason why Viele should take it in order to reach the Shawnee villages on the lower Ohio.

Another branch of this trail crossed from the headwaters of the Tioga river to the head of Lycoming creek, and then on down the creek to the West Branch, where it joined the main West Branch Trail to Shamokin. Near the headwaters of Lycoming creek this trail joined the trail leading to Elmira, New York. The line of the Northern Central Railroad follows the course of this trail, in the main, from Elmira to Williamsport.

Another branch ran southward over the divide from near Coudersport to the headwaters of the Sinnemahoning and down that stream to the West Branch, near the present town of Sinnemahoning. None of these trails were used to any extent by traders. They were used as hunting trails and as branches leading southward to the main Warriors Path. In the region near the headwaters of the Genesee, West Branch and Allegheny rivers there were no Indian villages of any importance at any period, either historic or prehistoric. Any villages, so called, were simply hunting or fishing camps. The whole region is rough and broken. During the Indian period it was covered with a heavy growth of pine and hemlock forests. Ridge trails were impossible because of the broken hills. The valleys were swampy and covered with immense hemlock trees and almost impenetrable growths of underbrush. It was little used by the Indians, save for occasional hunting and fishing. As it stood at the "Western Door" of the "Long House" of the Iroquois, which was guarded by the Seneca, there was practically no admittance to this region to a white man, save as a captive being taken over the trails to the Seneca villages

in New York. The region south of this trail is still the most undeveloped and the wildest and least inhabited of any part of the State.

2. *The Sheshequin Trail.* This trail ran up Towanda creek to its headwaters and then across to the headwaters of Lycoming creek and down that stream to the West Branch. It had probably been used by the Andaste, or Susquehannock, in passing from the villages along the West Branch to their fortifications at Carantouan, near Waverly. One of these villages, Utchowig, was situated somewhere between Lock Haven and Williamsport, most probably at the mouth of Pine Creek. The various earthen mounds and stockaded fortifications which were found in this region at the mouth of Pine and Lycoming creeks were probably the works of these Andaste or Susquehannock Indians. Such a fortification is noted on the Lewis Evans map of 1749 at the mouth of "Tiadachton" which is the present Lycoming creek, instead of Pine Creek as it was once wrongly understood. Some of the fortifications in this region seem to have been palisaded, as were the Conestoga forts on the lower Susquehanna. Most unfortunately all of these most interesting remains were destroyed by the early settlers, or by later investigators and vandals, who plundered the various burial sites of all the relics, without leaving any scientific data concerning the mounds or their contents. The relics taken from these mounds consisted of all sorts of flint implements, pottery, pipes, copper ornaments, etc. It is to be forever regretted that none of these mounds were left for scientific investigation. It is almost certain that the Wenro and Andaste occupied this region long before historic times. Many most interesting problems concerning the West Branch might be solved if some of these mounds had been allowed to remain. It is to be hoped that some mound may yet be discovered which has escaped the ravages of the early vandals. About the best collection of artifacts found in this region is in possession of Dr. Stewart at Lock Haven.

The pipes found in this region are similar to those found along the lower Susquehanna and at Athens and also bear a strong resemblance to the pipes found at the early Erie burial sites in New York.

The West Branch valley, where all of these Andaste sites occur, is connected directly by the Bald Eagle Valley and Spring creek with the Juniata valley. The old trail ran by way of these various villages to Standing Stone (Huntingdon), where it joined the main Warriors Trail into the Carolinas. It may be possible that the unidentified tribe of the Juniata valley was simply a branch of the Andaste or Susquehannock.

3. *The Wyalusing Trail.* This trail ran from Wyalusing, on the Susquehanna, up Sugar creek to its head and then across to the head of the Loyal Sock and directly across to the head of Muncy creek and down that stream to the West Branch at the present Muncy. This trail was probably used by the Andaste in going to the village of Oscalui. It was the course taken by the Moravian Indians, led by John Ettwein in 1772, as they went westward to the Allegheny from their deserted village on the Susquehanna. According to Ettwein's Journal they reached the West Branch about five miles above the mouth of Muncy creek.

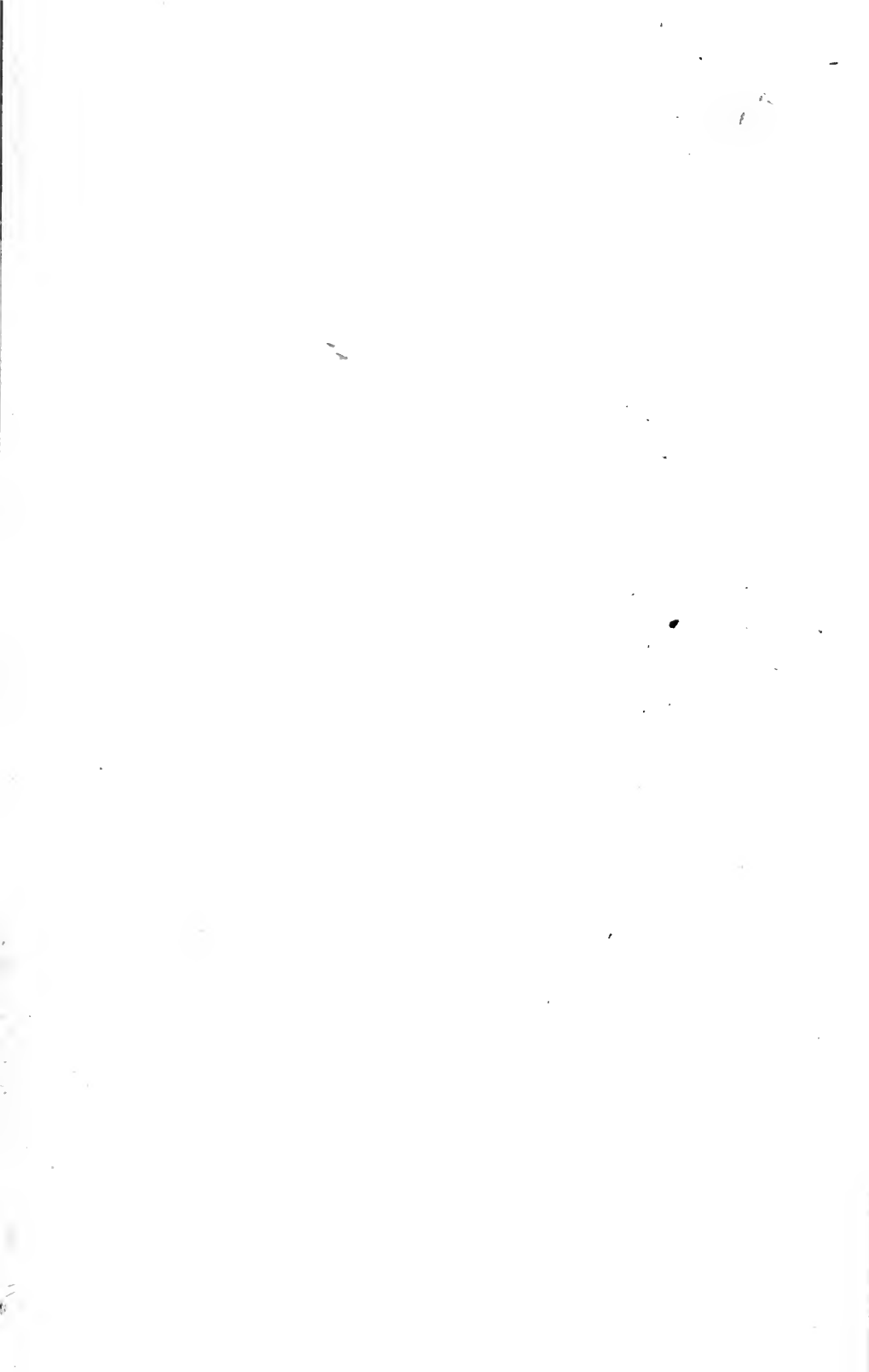
4. *The Wyoming Trails.* There were a number of trails westward from Wyoming to the West Branch and the Allegheny. The most direct route was that which ran from Plymouth to the mouth of Warriors Run, near Watsonstown. This trail ran almost due west, and was a part of the Warriors Path to the Big Island, at Lock Haven. Another trail ran down the Susquehanna to Nescopeck Gap, through Huntington valley to Fishing creek, up that stream to its headwaters and thence across to Muncy creek. Several trails ran down the river to Shamokin. The "trail through the valley", as it was called, ran southward, striking the head of Wapwallopen valley and down it to the mouth of the creek, crossing the river near Hicks Ferry, and joining

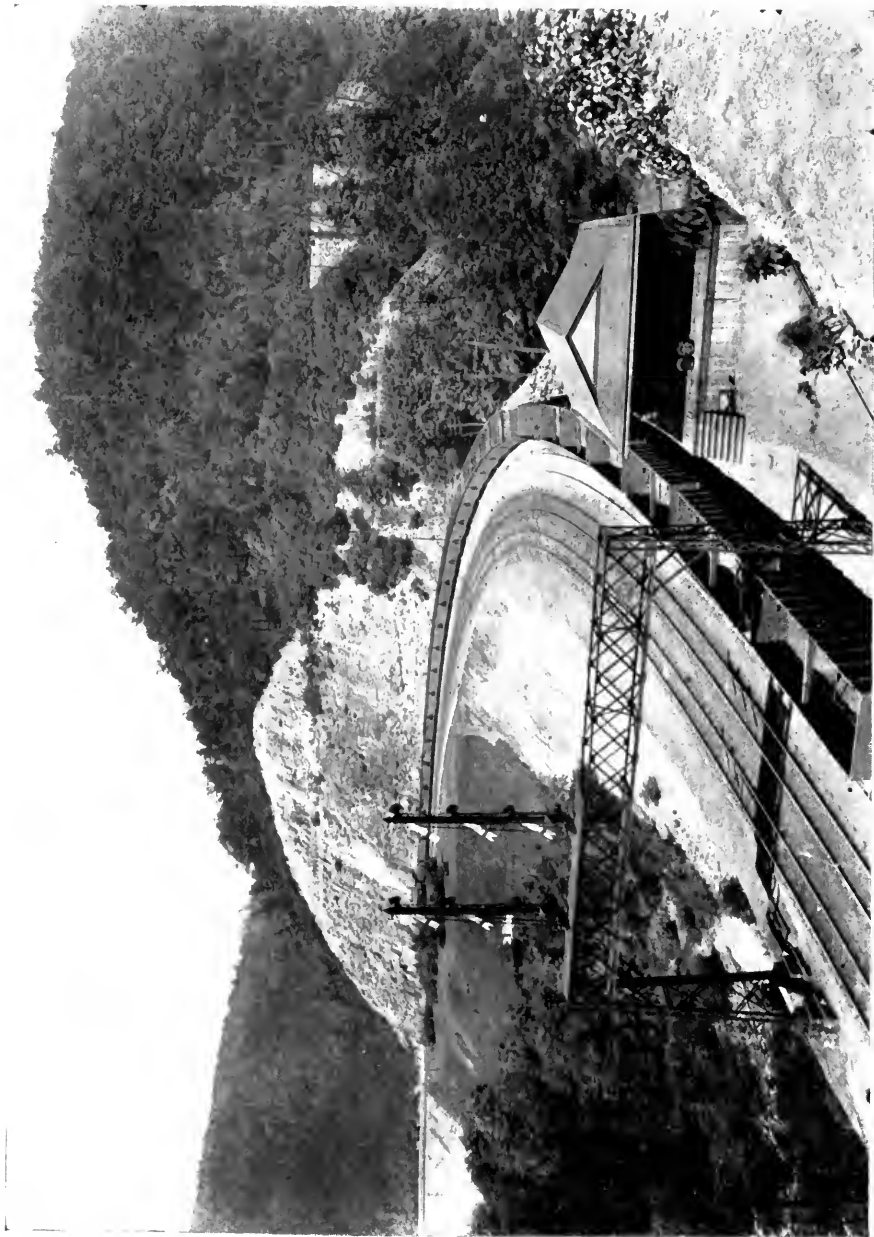
the trail southward on the western side of the Susquehanna. This trail along the western shore ran to the present Northumberland, from Plymouth, where it joined the trail up the West Branch. It was the course of the troops which joined Sullivan's expedition at Wyoming in 1779, Fort Augusta, at Sunbury, being the starting point.

Another trail ran down the eastern shore of the Susquehanna through Nescopeck, being a continuation of the "trail through the valley" mentioned before. It ran to the headwaters of Shamokin creek and then down that stream to the opening in the hills a short distance east of Sunbury. These trails are noted on the Scull maps of 1759 and 1770, and also on the Manor Map of Pomfret, No. 52, in the Archives of Pennsylvania, Third Series, Vol. IV.

Several trails ran eastward from these main trails southward. One ran from Nescopeck through the gap and up the creek to its headwaters and then across to the headwaters of Nesquehoning creek and down to the Lehigh. Another ran from the mouth of Catawissa creek up that stream to its head and then across to the headwaters of the Schuylkill.

5. *The Shamokin Trail.* The main trail westward from Shamokin (Sunbury) crossed the river near Packer's Island to Northumberland and then on up the West Branch through Muncy, Williamsport, Jersey Shore to the Great Island, at Lock Haven. Here it joined the trails leading up the Bald Eagle valley and up the West Branch to Driftwood and Emporium and then over the divide to the waters of the Allegheny which were reached at Canoe Place (now Port Allegheny). At Lock Haven the main trail westward to the lower Allegheny river went up the Bald Eagle valley to the mouth of Beech creek and up that stream to its headwaters and then on to Clearfield and Kittanning. The greater part of this trail was the course of John Ettwein and the Moravian Indians in 1772. C. F. Post also followed this trail from Shamokin in 1758, when on his way to





Kittanning Point, near Horseshoe Bend, where the Kittanning Trail crossed the Allegheny Mountains.

Kuskuski. He left the Kittanning end of the trail at Clearfield, taking the branch which led across the present Clearfield, Jefferson and Clarion counties, to Venango (now Franklin). From there he went westward over the Venango Trail to the Beaver river. A branch of this trail ran southward, from about Snow Shoe, to Frankstown, near Hollidaysburg, where it connected with the trails leading down the Juniata and into the Cumberland valley.

The main trail up the Bald Eagle valley, which left the Shamokin Trail near the mouth of Marsh or Beech creek, ran through the gap in the Bald Eagle mountains at Milesburg and on up to the head of Spring creek and over the divide to the present huntingdon, where it connected with the main Warriors Path. Another branch of this Bald Eagle Valley Trail ran on to Tyrone, where it connected with a branch of the Frankstown Trail, leading down the Juniata, through the Narrows to Huntingdon. From this point the main trail ran through Jack's Narrows to Mount Union, where the trail again divided, one branch running southward to the Black Log, and the other on down the Juniata. At Tyrone a trail ran westward to Frankstown, where it connected with Kittanning Trail and also with the Raystown (Bedford) Trail.

Another trail from Shamokin crossed the Susquehanna at Sunbury and passed through the gap in the Blue Hill and ran through Lewisburg to Lock Haven, where it connected with the Bald Eagle and Shamokin Trails. A branch of this trail ran up the Buffalo Valley through Mifflinburg to Bellefonte where it connected with the trails just mentioned in the Bald Eagle Valley.

Still another trail from Sunbury ran down the western shore of the river, through Shamokin dam, Selinsgrove, etc., to the mouth of the Juniata, where it connected with the Juniata Trail. There were trails leading westward from the Susquehanna through almost every gap in the mountains connecting with the Warriors Path, the Kittanning Trail,

the Frankstown Trail and the other westward trails which have been mentioned.

6. *The Juniata Trail* ran up the Juniata river, from its mouth to Standing Stone (Huntingdon) along the northern shore of the river for the greater part of the way. This trail was not much used as a trading trail to the Ohio as the Allegheny Trail, the Raystown Trail and the Frankstown Trail were more direct and better in every way.

TRAILS FROM THE LOWER SUSQUEHANNA, WESTWARD.

The most important trails westward from the Delaware and Susquehanna to the Ohio river ran across the Cumberland Valley. These trails were used by the Susquehanna and Delaware and later by the Shawnee, as hunting and fishing trails. They became the trails of migration of the Delaware and Shawnee westward to the Ohio. They then became the trails by which the traders followed the Indians to the Ohio. Then they became the military highways by which a continent was won, and then they became the pathway of Anglo-Saxon migration by which a vast Empire was established.

The northern trail from Shamokin to the Ohio was the course followed by many of the Delaware and Shawnee from the upper Delaware and from Wyoming and Shamokin as they migrated westward. But, the first migrations of the Delaware and Shawnee from the villages on the lower Delaware and Susquehanna were by these southern trails.

In order to get a general knowledge of these trails it is necessary to have in mind the topography of the region through which they passed. The Kittatinny, or North Mountain, runs along the northern boundary of the Cumberland Valley from the Potomac to the Susquehanna. It is broken at various places by "gaps" through which ran these western trails into Path Valley, which was bounded on the northwest by the Tuscarora Mountains. The gaps in the

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Trail down the Juniata river, Pennsylvania, now a Highway of Steel.

Kittatinny Mountains, commencing at the Susquehanna, are as follows: Stephens, Croghan's or Sterrett's, northwest of Carlisle; Crain's, Forty Shillings, or Long's; Hurley's, or Waggoners, northwest of Newville; McClure's; Doubling, north of Newville; McAllister's or Roxberry, northwest of Shippensburg; Yankee, north of Chambersburg; and the gap, or broad valley, which joins Path Valley with the Cumberland Valley at Parnell's Knob, near Fort Loudon. All of these gaps were gateways through the lofty Kittatinny Mountains through which passed the trails to the Ohio. Various trails ran southward through the Cumberland Valley from the Susquehanna to the Potomac.

The chief gaps in the South Mountain, which bounds the southern side of the Cumberland Valley, are: Trent's Gap, south of Carlisle; and Lindsay's, or Black Gap, southeast of Chambersburg. These two gaps were the chief gateways for the trails to the lower Susquehanna, through York to Lancaster, and to the Indian villages on the lower Susquehanna. The gap at Mount Holly, Dill's Gap, was also the course of a trail to the Shawnee village at LeTort's Spring. These trails through the South Mountain have become the lines followed by the highways leading east and west—the Lincoln Highway following the old Indian trail from Chambersburg to Lancaster.

These main trails from the Delaware to the Ohio can be located more accurately than many of the other trails because so many explorers, traders and military engineers went over them and have left journals and maps giving the exact course followed.

Conrad Weiser went westward to Logstown on the Ohio in 1748, on the first official mission of the Province to the western Indians. The journal of this trip is given in Colonial Records Vol. V, 348-358. In the Archives of Pennsylvania, Vol. II, 12-13, extracts are given from this journal with tables of distances between various parts on the trail.

WAR TRAILS, SOUTHWARD.

As stated before, practically all of the War Trails ran southward. Of course, during the period of the frontier wars the regular trading trails leading westward to the Ohio, became the war trails of the hostile Delaware and Shawnee. But, this warlike use of the Kittanning, the Shamokin, the Frankstown and the Allegheny trails was brought about by the struggle between the French and the British for the possession of the Ohio. They were not distinctively war paths.

The Iroquois War Trails ran southward from the habitat of the Iroquois Confederation in New York to the country of the Cherokee and Catawba in the Carolinas.

When this war of extermination between the Iroquois and the Catawba and Cherokee commenced is difficult to tell. It probably had its origin in the expulsion of the Cherokee and Catawba from the upper waters of the Allegheny river. The Talligewe, or Cherokee, formerly lived on the upper Ohio or Allegheny river (the name Allegheny is a perpetuation of the memory of this Iroquoian tribe—Talligewehanna, which has been corrupted to Allegheny, meaning "river of the Talligewe, or Allegewe"). The policy of the Iroquois Confederacy was either to confederate or blot out all of the tribes related to them. The Erie, Neuter and Andaste (or Susquehannock) did not confederate and were therefore destroyed. The same fate was intended for the Cherokee who fled southward to the Carolinas and saved themselves because of the miles of mountain barriers between their savage relations and themselves. But, the distance and the difficulties of carrying on a warfare did not stop the Iroquoise warriors. They carried the war into Carolina, from their habitat in New York. These Iroquois diplomats and warriors had a vision of a Pan-Iroquoian Empire, and they meant to see that vision become a reality. It is not difficult to see what might have happened if the white man had not interfered with this plan by coming to

the continent. The Iroquois Confederacy was the only strong union of related tribes on the continent, and when the settlement of the Atlantic coast by the Europeans commenced the Iroquois had conquered, or driven out, every foe from the great lakes to the Carolinas and from the Atlantic to the Mississippi. A Pan-Iroquoian Empire was about to be realized—when the white man came. It has always been so. The German army almost reaches Paris, and something happens to throw him back. The Iroquois, having the same dream and the same method of seeking its realization, almost attains his object, when something happens—in this case, as in the more recent one, it was the spread of civilization—and his dream ends.

The war parties of the Iroquois travelled over the many miles from their habitat in New York to the land of their hated relatives in the Carolinas, bent upon blotting them out. One of their statesmen said at one of the councils held with the Penns that this war had been on “since the world commenced and that it would end when the Cherokee and Catawba were blotted out”. This war was in progress when the settlements on the Delaware were first commenced by the English, and it was carried on across the State of Pennsylvania until the last war path was blotted out in the settlement of western Pennsylvania.

The two main Iroquois War Trails southward were the Susquehanna and Ohio rivers. This, of course, is a general statement, as there were many branches of both of these trails. But, it may be said, with some degree of accuracy, that all of the Iroquois War Trails, southward, had their starting points on the headwaters of one or the other of these two rivers. The Seneca, the great warriors of the confederacy, occupied the most strategic position of any of the tribes, as they could reach all of the main trails southward on both of these rivers. The Allegheny, the Genesee, the Tioga, the Chemung, as well as the creeks leading to the West Branch, were all roads to the main war trail southward.

It would be interesting to give an outline of the course of all of these branch war trails from the Iroquois country to the various points of meeting on the main war trails, but space forbids. The chief points of intersection, or meeting, of these various branch trails, were, as stated before concerning the Trading Trails, at Lock Haven, Sunbury, Huntingdon and Harrisburg, or to give the old names, at the Big Island, Shamokin, Standing Stone and Paxtang. These places were the meeting points for the warriors of the Iroquois as they went southward, and also the places at which their victories were celebrated after their return and before they separated for the various trails leading to the villages from which they had gathered.

Many branch trails centered at the Big Island, at Lock Haven. One of these ran from the Wyoming Valley almost due west to Muncy, and then up the West Branch; another ran down Pine Creek to Jersey Shore; another down Lycoming Creek to Williamsport. All of these joined the Main Trail leading down the Bald Eagle Valley to Standing Stone, on the Juniata, where it joined the "Warriors Road", which ran along the eastern foot of the Warriors Ridge, crossing the Potomac at Oldtown, Maryland.

Standing Stone (now Huntingdon) was the chief trail center for the war paths from the West Branch and the upper Susquehanna. The trail from Shamokin (now Sunbury) crossed the Susquehanna just about the end of Packer's Island to the break in the mountain opposite Sunbury, and then ran along the foot of the Allegheny mountains to Huntingdon, where it joined the Juniata Trail, the Raystown branch of the Frankstown Trail and the Warriors Road, leading to Bloody Run, Oldtown, etc.

This "Warriors Road" was both an old and a new one. It had been used by the Iroquois long before the coming of the white man, and then it had been abandoned for a while as the easier path down the Cumberland Valley, from Harrisburg to Williamsport, on the Potomac, had been the



Once an Indian Trail, now a city street, Carlisle, Pa.



Near Old Town, Maryland, where the Warrior's Trail crossed the Potomac.



favorite route to the south. But, as the lower Susquehanna river region and the Cumberland Valley became dotted with the villages of the white man, this course became more and more impossible as a road for Indians on the war path. Finally the matter came before the Province and the Six Nations at the Council at Lancaster in 1762. Governor Hamilton in his address to the Six Nations at this treaty says: "Now Brethren, I must acquaint you that all the way from Harris' Ferry to Potowmack, the white people are settled very thick, so that should your warriors now use that Path, frequent Differences between them and the Inhabitants might probably arise, by means whereof the peace so lately established between us, may be endangered. And I must desire you, for this reason, to use your best interest with the Warriors in case they are determined to go to war, that they would pursue the old War path from Shamokin, which lies at the foot of the Allegheny Hills, & which is the nearest Way to their Enemie's Country." (Col. Rec. VIII. 769). In order to make this request of more authority a trading house was to be established at "Daniel Créssip's House" at Oldtown, Maryland.

In a letter to the Governor of Virginia, Governor Hamilton, in referring to this matter, says: "At a Treaty which I held last Month with a large body of Western and Northern Indians, the Chiefs of the Six Nations acquainted me that it was detirmined to continue the War against their old Enemies, the Cherokees: and as they were informed that their War path through Virginia was stopt up by some late Settlements of White people on it, they desired I would forward their request to you to have it opened, & that I would loose no time in doing it, some of their Warriors being then present, and intending to go to the South as soon as the Treaty Should be over. I did by no means approve of this * * * but desire they would not go this way, but take their old path that led by Shamokin & the Foot of the

Allegheny Hills. This they conceded to, tho with reluctance." (Op. Cit. 780.)

From this time until the settlement of the valley south of Huntingdon, this Warriors Road was used by the Iroquois in all of their raids against the Cherokee and Catawba. They went in canoes to Shamokin (Sunbury) or down the West Branch to the Big Island, and then took the overland route to Standing Stone, where they took the Warriors Road southward. After the settlement of the Central Pennsylvania region they again moved their roadway westward, taking the old "Catawba Trail", which ran from the Allegheny river across Westmoreland and Fayette county, through Connellsville and Uniontown to the Maryland line. This trail was joined by various branches known as "Warriors Trails" in southwestern Pennsylvania.

In later days, when the white settlements began to cover western Pennsylvania, the war parties went down the Allegheny river to the site of Pittsburgh, and then up the Monongahela river to where the old path southward crossed this stream.

Thus, not only did the white man drive away the red men from their villages along the great rivers, but they also drove westward the War Trails until they were at last lost in the waters of the Peaceful Ocean.

The War trails of the Iroquois have become the trails of peace and industry. Over the same course where once walked these war-painted warriors on their mission of death and destruction, there to-day thunders the mighty trains on a road-way of steel, carrying the wealth of farm and mine and workshop to the four corners of the earth.

Let us earnestly hope that the days for the carrying the munitions of death and destruction have ended for the white man, as they have long since ended for the red man, and that henceforth all of these highways of civilization may be used to carry the blessings of our wonderful State to men of every race and color.

MINERAL COAL.

BY VOLNEY L. MAXWELL, ESQ.

READ AT INSTITUTE HALL, WILKES-BARRE, PENN'A., IN FEBRUARY, 1858.

PREFATORY NOTE.

["These lectures were written, not for publication, but to interest, if practicable, highly intelligent audiences of ladies and gentlemen in Wyoming Valley—themselves well acquainted with many interesting matters connected with the subject, and therefore passed over by the Author. We were then in the midst of the financial troubles of 1857-8, when even hope, for a long time to come, seemed crushed in the hearts of our people."

"We reprint them now on account of the useful facts embodied, and because two years experience since, have most singularly verified all their predictions thus far. The Wyoming and Lackawanna coal field is next door neighbor to New York. Arrangements are being made materially to improve the grade of the Morris and Essex Railroad, and to extend it to the Delaware, but it will not stop there. It will be extended direct to Wilkes-Barre, the center of the coal field; for the best coal is now known to be in that region. The Scranton Company has leased coal mines southwesterly of Wilkes-Barre, and nearly seventeen miles southwesterly of Scranton, and are of course thus bringing their coal through the latter place. There is yet room for another large Coal Company, and if it should be formed and extend to Wilkes-Barre the road referred to, all other coal companies subsequently formed, must be content with the means of transportation thus provided."

This was in 1860. Happily now, in 1869, The Morris and Essex Road, extended to the Delaware, is receiving coal for New York, from the new road since made by "The Lehigh Coal and Navigation Company" from Wilkes-Barre to Easton; and from The Delaware, Lackawanna and Western Railroad at their junction. "The New Jersey Central Road" is also receiving coal at Easton from the Lehigh Valley Railroad, since made also from Wilkes-Barre to Easton. The New York and Erie Railroad Company has also since constructed a branch road from theirs at Lackawaxen to Hawley, and Honesdale, where they receive coal from Carbondale and Pittston; and the construction of another railroad has recently been commenced by the same Company, to be extended from their road near Lanesboro into the Wyoming Valley. And besides these, the Pennsylvania and New York Canal and Railroad Company have

now their Canal and Railroad just finished, carrying coal, side by side, from Wilkes-Barre and Pittston mines to western New York, and even to Chicago and Milwaukee.

There being so many competing lines of transportation, it would seem the demand for coal might be easily supplied at reduced rates. Why not? Simply because of increased demand for the article; adverse interests and illegal combinations of labor against—even its own *ultimate* interests.

If the duty on imported coal shall be released by the Government, not a pound less of our Anthracite will be used; for it is the superior quality of the Anthracite—not the duty—that keeps the Nova Scotia, and other bituminous coal, out of market,—except for a few special purposes. Yet, for the sake of all other business, the price of the Anthracite ought to be reduced—else the consumers in New York city and the east must supply themselves by an efficient coal and transportation company of their own.]

LECTURE I.

Familiar, as we all are in this valley, with this great staple of its business and trade; and brought home to our firesides as it is, every hour of our lives; the keen edge of our own curiosity may well be turned by unceasing contact with so hard a subject.

Still, even among ourselves, the curious question is often started; an idea new or old, is thrown out as food for thought; and sometimes a crude incipient theory is hazarded by some adventurous mind, and for once becomes the subject of merriment, or of doubtful, hesitating discussion, and is soon forgotten. We can readily imagine, therefore, with what unfeigned curiosity an entire stranger to the subject, would examine the first specimen of mineral coal presented to his view. Its appearance alone, would excite his close attention. The fact that it is used so extensively for fuel would add a deeper interest to the article; and, that it is found in so great abundance, evidently laid up in store for man between the rocks of the earth, would lend a still deeper interest to the mysterious subject. How could he resist the promptings of a curiosity thus excited? And with what zeal

would he inquire and demand a knowledge of every fact respecting it. What is Mineral Coal? What is its substance? Of what material is it composed? Are questions that would first arise in the mind of such an inquirer; and if he were only told that it is composed almost wholly of carbon, he might feel but very little enlightened.

To pursue the subject further, he would have to learn, or to recall to mind the fact, that the early chemists gave the name of carbon to all that part of common charcoal which *burns*; and that they thus attempted to distinguish between its main inflammable substance and its impurities found in its ashes after combustion. But this explanation might still be unsatisfactory. He might know, or think, that these impurities were accidental; that they had been carried into the wood by the ascending sap of the original tree; for in the sap of wood, the chemist finds those impurities, consisting of certain salts of the earth, iron and silex—all afterwards found to compose the ashes of the coal. He sees, then, that in charcoal he has not the pure, and unadulterated carbon; and how far its appearance, properties, and characteristics are modified or changed by these impurities, is impossible for him to tell. We know that iron is the great coloring matter of nature; in which she dips her mysterious pencil, and paints all her handy-work; but how the salts and the silex modify the nature of carbon no one knows. Charcoal is not, however, the pure carbon the inquirer desires to see, and if his curiosity is to be gratified, he must go to the precious diamond of the jeweler.

In that brilliant gem we behold a substance, in appearance, as different from charcoal as possible; and, to the eye and all our senses possessing not a single one of its properties. Diamonds are found generally in the loose, diluvial sands of rivers and plains, apparently washed from mountains of granite and other primitive rock. So rare are they that one weighing less than an ounce was sold to the Duke of Orleans for more than a million of dollars. Another, weighing only

about two and a fourth ounces, is now among the crown jewels of Queen Victoria, and cost the British Government nearly nine millions of dollars; but diamond merchants estimate its real value at three millions. So hard are they, that no other substance has been found to scratch or cut them; and the consequence is, that they are shaped, and polished, only by rubbing them together; or by using upon one the grit of another, pulverized for that purpose. As to light, it possesses a high refractive power bespeaking its vegetable origin. It is a non-conductor of heat and electricity; is unaffected by acids or alkalies; and will not melt in any heat that can be applied. Its beauty, as a gem, consists in its power of apparently absorbing the sun's light, and of giving it out afterwards in beautiful phosphorescence. In a word, it is pure crystallized carbon,—so very different from charcoal in all its aspects, that we must have the very strongest proof before we can admit that they are, substantially, one and the same substance: And what is the evidence of this fact?

The first test is a very simple one. If a piece of diamond is inclosed in a wrought iron shell, or ball, and the whole heated red hot; upon opening it nothing is found; not a particle of sediment or ashes; and nothing of the diamond is to be seen; but, upon examining the inside of the iron ball, its nature is found to be entirely changed. Before, it was wrought iron; soft and malleable; now it is steel, or more properly like cast iron; showing clearly, that the diamond is but pure carbon; and that it has entered into the iron and changed its nature, as carbon always does; for if a small piece of charcoal is placed in the ball, and heated as before, precisely the same result follows; except that the impurities of the charcoal are left in the shell as ashes; while the nature of the iron is changed, as in case of the diamond.

There is another test to be added to the foregoing and it is far more interesting and decisive; but, to understand it, we must bear in mind some of the prominent qualities of

oxygen. When pure, oxygen is a transparent, colorless gas; which no degree of cold or pressure has ever reduced to a liquid state. It is the most widely diffused, and the most important of all the simple elements. It constitutes by weight, more than one-fifth part of the whole atmosphere. Of all the waters of the globe, it forms about eight-ninths; and in all probability constitutes about one-third part of all the soil and rocks of the whole earth. Of all known substances, it has the widest range of affinities; and this strong and varied disposition or power of uniting itself,—for different purposes,—with almost every other substance, seems to stamp it with the character of a discriminating intelligence. Its embrace, however, is one of life or of death. With this power of combination, it builds up and tears down, and seems ever at peace and at open war with the other elements of nature. It helps to construct the wonderful fabric of our bodies; and sustains us in life and in health; but, the functions of our systems once fatally disturbed, it turns upon us with a destructive power; feeding upon the carbon of our flesh until exhausted and then assailing the carbon of the brain, when the delirium of death intervenes and closes our existence here. But we must now look more carefully at some other of its operations.

If a piece of sheet iron is exposed to the weather, it is soon destroyed by rust. The oxygen of the air, the dew and the rain, unites with the particles of iron, and one by one, changes them into the oxide of iron: and chemists describe this change briefly by the simple expression, that the iron is *oxydized*; in other words—by this process the iron is *burned up*; and yet by a process so slow, that neither perceptible heat nor light is evolved. That the process of combustion is only the oxydation of the substance consumed, is proved by the following facts.

A small measure of water may be entirely decomposed by a galvanic battery, and thus its original elements are found

to be two distinct gases—oxygen and hydrogen; each differing from the other in almost every particular, except their gaseous form; and yet, when again mixed in the same proportion as in water, they retain that form, and do not become water by mere mixture. To reduce them to water, fire must be applied; and if this be done, only by a heated wire, an explosion occurs, and the whole is instantly changed to water,—a substance widely differing from both the gases of which it is composed.

Now what is the chemistry, or philosophy of this change? Clearly this: the hydrogen gas is only oxydized; and the oxygen has united with it *so rapidly* as to disclose the latent heat in both gases, and in such abundance as to produce light. This most interesting fact—the existence of latent or hidden heat in all substances—is proved by a simple, old-fashioned instrument used before the days of the lucifer match and for the same purpose.

A blow upon this instrument would condense two or three cubic inches of air into a space less than half of a small pea, and the tinder previously deposited would take fire in consequence. That two or three inches of summer air should contain heat enough to light the tinder might not seem so very strange; but to see the same fire lighted by the condensation of out door air in winter, so cold as to freeze everything within its power, does seem strange, and can only be accounted for by the existence of latent heat in all substances yet tested.

By putting such facts and developments as these together, and by reading their meaning aright, we are enabled to see clearly what the process of combustion is; it is the oxidation of whatever substance is burned. If a piece of wood is placed in a vacuum where no oxygen can reach it, it will not burn; but if lighted in the open air, the oxygen of the air unites with the carbon of the wood, and evolves the latent heat of both, so rapidly as to be seen and felt, sometimes to our loss

and suffering.* It is to this love or this affinity of oxygen for carbon that we are indebted for all our fires; and for the large amount of comfort and happiness they bring to us, in various ways. These truths, of late years, have become a part of the mere alphabet of chemistry; but we must recall and bear them in mind if we would know what we are about; and with the aid of these few facts we shall be enabled to comprehend more clearly another test of the nature of the diamond.

Pure oxygen, being heavier than atmospheric air, can be poured into a glass jar, where it will remain for experiment. In a jar thus filled with oxygen a piece of diamond may be put; and then if you turn upon it the focus of a powerful lens or burning glass, the diamond will take fire, and burn with a lambent flame until it is consumed; but what is the product? Nothing but carbonic acid gas; which, being also heavier than the atmosphere, will remain in the jar, taking the place of the oxygen consumed. The oxygen has united with the carbon of the diamond and thus formed the carbonic gas. And this is proved, not only by the nature of the change which has taken place, but by substituting a piece of charcoal in place of the diamond precisely the same result follows the same experiment; save that the charcoal leaves a particle of ash in the jar; and if, in the place of charcoal, a piece of Anthracite coal is used, the same result is again pro-

*The more modern theory, is that heat is not a pervading fluid, substance, or element; but the *effect* of motion in the ultimate particles of matter; that every such particle is separated from all others by a space as imperceptible to our sense as the single particle itself, yet a space sufficient to admit of its constant revolution and changes of position attributable to its polarity. If this be true, how are the particles of matter held together with such tenacity? We may answer—by the attraction of cohesion; analogous to the power which holds the planetary system so firmly together, and yet allows each planet the freedom of two exceedingly rapid motions. We can divide and scatter the particles of iron, but not a planetary system; and certainly this theory explains more of the phenomena of nature than the older one referred to above and in previous passages. If it is a correct theory, then we can only say of combustion that the rapid union of oxygen and carbon so accelerates the motion of their ultimate atoms as to produce the effects called heat and light.

duced. Differing, as these two gases do, so widely from each other, these experiments are of great importance. They present undeniable evidence that the precious diamond is the only specimen of pure carbon to be found, seen, and handled; and that charcoal is the next purest carbon, having only about two or three per cent. of impurities.

In like manner careful chemical analysis proves that Anthracite Coal is the next purest carbon, in large quantities. A fine specimen of it contains about ninety-five per cent. of carbon, while about five per cent. of it is found to consist of water and sand; with sulphur, alum, iron, etc., in various but very slight proportions.

From this the Bituminous Coal differs essentially. If you were to go to the neighboring gas works you would see it there in the process of distillation, and the process itself; the chemical changes, the object, the mode of its accomplishment, and the results, would all afford ample material of themselves for an interesting and instructive lecture; but we can notice here only a very few leading facts that bear directly on the main subject.

The main products of this distillation are the gas, the tar, and the coke. The gas, collected in the Gasometer and distributed through the town, is called carbureted hydrogen. Pure hydrogen, uncarbureted, with oxygen, forms the elements of water; and in some of the Bituminous Coals there is enough of water and other substances containing hydrogen to render their distillation profitable for the purpose of light; and of these substances, consisting of resins and other matters, there is about twenty-five per cent., usually, of the whole; leaving only about seventy-five of pure carbon in Bituminous Coal. In its pure state, hydrogen gas burns with a faint light and a bluish white flame; and it is rendered useful for lighting purposes, only by the carbon it carries off from the coal. It is this carbon, mixed with the hydrogen, that gives it the name of carbureted hydrogen, also its high

illuminating powers; and its grosser particles sparkle in the flame of our gas lights.

Besides the gas a large quantity of tar is produced and used for economical purposes, and lastly the coke, taken out of the retorts after the gas and the tar have been expelled. This coke is the remaining unconsumed carbon of the coal, and resembles charcoal in many respects. Now if wood, instead of Bituminous Coal, is put into the retorts and treated in the same manner, the same products, substantially, are obtained. The gas is the same but more difficult to purify, and is hardly as good for light. The tar is very much the same, though differing somewhat in its qualities; and instead of carbon in the form of coke, we have it in the form of charcoal.

Bituminous Coal then, upon distillation, produces carbureted hydrogen gas, tar, and carbon in coke; while wood, treated in the same manner, produces the same gas, a similar tar; and also carbon in charcoal.

These resemblances long ago produced in the minds of scientific men strong impressions that wood was the origin of mineral coal; and further investigations since have deepened the impressions into the strongest convictions.

For instance,—charcoal, pure and perfect, is often found in the middle of Anthracite Coal and in the deepest beds; and sometimes the charcoal seems to run almost imperceptible into the Anthracite. Again, if a thin flake of Anthracite, rubbed down until it is semi-transparent, is placed between a microscope and a powerful light, the vegetable structure of its cells is unmistakable; for the cells are characteristic of the labors of the Creator in the wood of forests, just as the cells of the honeycomb are characteristic of the labors of bee.

Doct. McCulloch, also, by heat and great pressure, converted wood into a substance so strongly resembling Mineral Coal, that he no longer doubted the vegetable origin of the latter; and last of all, beds of Cannel Coal have been found

to contain whole trees, with roots, branches, leaves and seeds, converted into perfect coal of that quality. It differs from other coal principally in its form, weight and structure; and yet it is so clearly nothing but Mineral Coal, that all further question as to the vegetable origin of the latter, seems to have been abandoned. Even the unlearned workmen, seeing so much evidence of this in the vegetable impressions of the coal strata, and otherwise, are also impressed with the same convictions as to its origin. But this fact conceded, there are still many interesting questions to be solved. Where could all this vegetable matter, necessary to form such extensive coal beds, and so many of them have come from?

In this single coal field there are at least one hundred and fifty square miles of coal land; and in most of that area there are six or seven thick workable coal beds, whose united thickness cannot be less than sixty feet. The shape of the Valley; the evidence of its once having been a lake and the flowing into it of a large river have given rise to the impression in the minds of many, that the large amount of vegetation preserved in these coal beds must have been swept into it at different and remote periods by overwhelming floods. But such a theory cannot be correct. If it were, the coal instead of being nearly pure carbon, as it now is, would have been mixed with sand, gravel, clay and stone in such large proportions as to have rendered the coal comparatively useless. There is, indeed, abundant evidence of overwhelming floods or drifts; but not of vegetable matter. The subject of such drifts has been the clay, sand and gravel which now compose the rocks intervening between the beds of coal. The vegetable matter composing the beds themselves is too pure to have been disturbed by such drifts except to be covered by them; and the conclusion irresistibly follows, that the vegetation in question must have been buried upon the spot where it grew.

Our minds are prepared then to understand the next prominent fact bearing upon the question; and it is this:

Under every coal bed, and immediately in contact with the coal, is always to be found a stratum of what miners call fire clay. Its thickness, hardness and color, of course, vary. Sometimes, and generally in fact, it is found in the form of a slaty rock; but whatever its color or consistency, that same material is always to be found under every coal bed, whatever its thickness. Its nature is always that of a clayey soil; and undoubtedly it formed the *soil* in which the vegetation of the coal bed took root, and began to grow; for, on close examination, it is always found to be full of the fossil impressions of the roots and twigs of the coal vegetation, which once grew from its bosom.

These facts are suggestive; and our minds are naturally turned from them to the process of a coal bed's formation upon this theory; but it is not a mere theory, for we can still adhere to well known facts for its illustration. The formation of peat beds is strikingly analogous. We are not familiar with them in this region; but they are, in a great degree, the products of a species of moss called by botanists the *sphagnum paluster*. Like some other kinds of moss, its lower roots annually die, while the top continues to live and grow by sending out new roots above those decayed. In this way a year's growth is annually added to the thickness of the bed; and this is so well understood by the workmen that in some localities where it is an object to preserve the bed, the sod containing this moss is carefully removed and after a stratum of peat of uniform thickness is taken from the bed for use, the sod is replaced that the bed may be renewed. In Bakewell's geology it is said that a peat bed has been known to grow nine feet in thirty years. The peat is cut out in blocks with sharp spades, stacked, covered and dried for fuel; and sometimes the water is pressed from it, which facilitates its drying, and renders it more compact and useful. It burns well when dry, and answers a good purpose for fuel. I have seen a specimen of peat from Canada. A portion of it seemed to be fibrous, as we would naturally

anticipate; but the other end of the block, which doubtless was the lower end as it was in the bed, very strongly resembled bituminous coal in odor and appearance. Besides the moss, already referred to as the principal vegetable concerned in the formation of peat, there are about forty others which help its growth in some degree; but they are all of small stature, mere weeds, rushes, etc., while the fossil remains of the coal flora exhibit about four hundred different kinds, of all sizes, from the smallest to those among the largest of trees. These facts, therefore, present a difficulty in the case of coal beds which does not exist in the case of peat; and yet this difficulty may be solved by another appeal to facts.

In the geological reports of New Jersey is a full and particular description of the cedar swamps in the southern part of that State. In such swamps there is generally a thick growth of timber, and the reports say, "the soil in which these trees grow is a black earth, or mud, varying in depth from two to three, to twenty or more feet, and is composed of vegetable matter, which, when dry, is easily burned; and the amount of ashes left is exceedingly small. In two trials which we made the amount of ashes left from the dry earth was only one and a half per cent. When this earth is opened to the sun and rain it decays rapidly; but when covered with a growth of trees, and so shaded that the sun does not penetrate to the ground, it increases rapidly from the annual fall of leaves, and from the twigs and small trees which die and fall. A log, sawed at both ends, was recently found entirely buried in the swamp, and was known to have been cut within the memory of men familiar with the place. Other trees are also found in great abundance, buried in the earth at all depths, quite down to solid ground. Men are annually engaged in digging them out, and converting them into rails and shingles. Some of these buried trees are found with the roots upturned, as if blown down by the winds; while others are broken off as if they had stood and decayed until

too weak to support their own weight." Another significant fact is developed by this survey. It is found, that in the southern part of New Jersey, *the land is sinking*; and this is proved by portions of these swamps being now under sea water, with their trees yet standing where they grew, but killed by the effects of salt upon them. Certainly they never started into life, and grew to their present size under water; and therefore the land in that region must unquestionably have been sinking below its former level. Now, suppose these cedar swamps shall continue to subside, until their timber shall have all fallen, and the ocean shall have thrown over them beds of sand and gravel hundreds of feet in thickness,—what is to hinder their twenty or forty feet of black carbon being in time compressed, hardened, and converted into coal? All must see the probability of such a result—the almost certainty of it; for in England coal beds not only exist under the sea, but are mined for more than a mile under the ocean, in more instances than one. And if our minds yield to the probability of such a formation, we can then understand why it is, that at the bottom of a coal bed we find the ancient fire clay or soil in which its vegetation commenced filled with impressions of roots, and at the top impressions of leaves, twigs, etc., and along the roofs of some coal beds the fossil remains of trees, sometimes seventy or eighty feet long. Clearly, if a coal bed has been so formed, the bottom of it is exactly the place to find one, and the top to find the other.

We have seen that the mud of these swamps are full of trees, that have lived out their time and are thus buried beneath the surface. We know, also, their power of still resisting the elements of decay. In aid of this power, comes the preserving qualities of the carbon in which they are imbedded, and their exclusion from frost and the oxygen of the air,—the great enemy of their existence. Can they ever become mineral coal? We know not, it is true, the details of their future history, but we can look at the past.

In beds of cannel coal, whole trees, of all sizes, with roots, branches, leaves and seeds, are found carbonized, and forming fair specimens of that kind of coal. Its name is an English corruption of the word *candle*, and is given to it because it burns with great freedom, affording an humble substitute for candle light in many a cottage home of England. There this coal was first discovered and characterized. It is also found in this country—in Kentucky, and in Beaver county, of this State. In addition to this, there is the brown coal of Europe. Geologists speak of it as formed of “heaps of trees, buried by inundation, under beds of clay, sand, and gravel. The woody parts have probably undergone a certain degree of vegetable fermentation, under pressure of incumbent earth; and thus have become carbonized and consolidated. In some specimens the fibre or grain is perceptible in one part, while the other is reduced to coal. In such instances—and they are numerous—nature is seen in the act of making coal, before the process is completed. A large deposit of this coal exists in France, near Cologne;” and it is added by Bakewell, that “it extends several leagues, is fifty feet in thickness, and has trees imbedded in it.”

We have thus endeavored to trace, step by step, the outlines and strong points of the evidence by which men, who have examined the subject carefully and thoroughly, have been convinced of the vegetable origin of mineral coal. In the minds of such men, it is now a settled question; but other questions of great interest arise at once upon the foundations of this theory.

Here, in this valley, we have coal strata whose united thickness is, at least, sixty feet. We are all familiar with its solid structure; and if, as we suppose, it has a vegetable origin, its solidity must be owing to the great pressure of the overlying earth and rocks. What then must have been the original thickness of those ancient vegetable deposits, which, thus compressed, present now such a great thickness of coal? The coal beds of Great Britain, not thinner than

our own, cover nearly one-third of that island. Those of the United States, east of the Rocky Mountains, are supposed to cover an area of 133,000 square miles; and this is but a small part of all the coal in the world. Where then, we may well ask, could all this carbon, forming these vast beds of coal, have come from? The question may not be answered satisfactorily to every mind, but we are not without a guide in the inquiry.

A forest tree of the first class contains a large mass of vegetable matter. A portion of this can be placed in a retort and by heat all its resinous and volatile matter can be expelled, leaving its carbon or charcoal of the same shape and size as the piece of wood subjected to the process. And if it were practicable to subject the whole tree, just as it stands, to a similar distillation, we could then see at a glance its whole perfect anatomy, or frame work of carbon, and better realize the massiveness of the material. Applied to such a structure, the question—where did all this carbon come from? has more of significance and difficulty. Carbon, with all other elements was formed by the Creator, it is true; but here is a large towering column of carbon, that was not standing here a century ago: whence and how was it gathered up and raised into this elevated structure? We know that about the roots of such a tree there is carbon in the vegetable mold of its soil, but not enough within the sphere of its roots' attraction to build up such a noble column. Besides this, no diminution of the carbon at its roots is perceptible. On the contrary the tree itself adds its annual contribution to that deposit, increasing its thickness from year to year, as we have seen in the case of the cedar swamp; and this annual deposit is over and above what is annually retained in the tree. It cannot produce or cast off more carbon than it receives; and as it receives none from the ground on which it stands, we have forced upon us the conclusion, that all its carbon is derived from the atmosphere; that its leaves inhale it from every breeze; and yet,

in the present atmosphere scarce a trace of it is to be found. We know that it exists; that myriads of living beings are continually breathing out a gas surcharged with carbon, and inhaling the life preserving oxygen, as bountifully given out by the vegetable kingdom; and we see that one kingdom, in the wisdom and merciful providence of God, is thus made to sustain the other. We know, also, that carbon is one of the sixty-two or three simple elements supplied to us by the same wisdom and power in all-sufficient abundance; but we cannot yet understand the process of its distribution, nor all the movements and changes to which it has been, and is yet subjected. One thing more, however, we do know; that if the incalculable mass of carbon, now fixed and consolidated in mineral coal, were again set free in the form of carbonic gas there would be more than enough to poison the world. We look back, therefore, to the time when, at the commencement of the coal formation, no oxygen-breathing animal could have lived; and we judge of that period by the fact that no fossil remains of any animal now living out of water have come down to us from the coal period; while the remains of those once living in water, and of the vegetation of that period, are abundant.

Nor is this all. We have already alluded to the fact, that the animal kingdom as it now exists, furnishes to the atmosphere nearly all its supply of carbon, in the form of carbonic gas breathed from its innumerable lungs; while on the other had the vegetable kingdom yields to the atmosphere in return, its proportion of oxygen for the sustenance of animal life. With these facts, we must connect another, bearing strongly upon this point; and, it is the division of the animal kingdom into two great classes,—first, those animals living upon vegetables; and secondly, those living upon flesh: for it is clear that before the vegetable kingdom was brought into existence by the fiat of the Almighty, no vegetable eating animal could have existed; and consequently, that the second class of animals, living upon flesh, could not have

existed until vegetation had reared up a generation of the first, for the latter to feed upon. This seems clear; and I had written just this far when it first occurred to me to test this theory by the order of Creation, as stated in the first chapter of Genesis. My recollection of that order was entirely at fault, and I turned to it with some misgivings, but they were all baseless. In the eleventh and twelfth verses, the creation of the vegetable kingdom is mentioned; in the twentieth verse, the creation of the fishes is stated; and in the twenty-fourth the creation of the animal kingdom is described, *commencing* with the *cattle*; as the vegetable kingdom commenced with the *grass* of the field. Surely, no one need ever fear that the truths of the Bible, rightly understood, will ever conflict with the truths recorded or developed by nature, for both have for their author the same Great Being, who "cannot lie"; and if poor Gallileo, and the ignorant Romish Priests who persecuted him for his theory of the earth, had read their Bibles as they ought, they would there have found the truth revealed that the earth is round.* They would have seen that inspiration speaks of it as the *earth ball*,† and also, that "He stretcheth out the North over the empty place, and hangeth the earth upon nothing;"‡ thus revealing deep physical truths which Astronomers labored for centuries to discover because they overlooked them in the revelations of their Creator.

*Ps. 18:15.

†Ps. 77:18.

‡Job, 26:7.

The words in the original Hebrew, found in two verses of the Psalms quoted above and meaning *round* and *ball*, are not translated in our English version of the Bible; but in the earlier translation of the Psalter the first verse is literally translated, having in it the phrase "the *round* world"; but the more cautious translators of the Bible being engaged in that work before the days of Galileo and therefore not dreaming that the earth was a round ball, may well have doubted whether they understood all the different meanings of those original words, and from over caution may have omitted them in their translation, lest they should lead to material and injurious error. And as to the last quotation from Job—to men, at the time of that utterance, the earth seemed an interminable plain; and who, but God, could then have revealed the fact that the "North was stretched out over the *empty* place"? or that the earth was hung "upon nothing"?

We may then return more confidently to examine the vegetation of the coal period with such lights as we have; and we find strong evidence of its having been most abundant, and of very rapid growth and decay. It was also the production of a much warmer temperature, and a more humid atmosphere than our own; and when we reflect upon its reed and cactus-like nature; and upon its rapid growth, and the almost inconceivable amount of it necessary to have formed our Coal Beds, we are deeply impressed with the conviction that the atmosphere of its day was over-burdened with carbon, derived, much of it probably, from the disturbed and volcanic earth; for carbonic gas yet bubbles up from many a mineral spring; issues from thousands of volcanic fissures; and the Lake of Solfatara, in Italy, to this day sends forth immense quantities of it from its surface. Traces of extinct volcanic action are visible all over the earth; and though no ancient crater can be pointed out in many sections of its crust, yet the up-heaved rock of our own mountains, as well as others, attest the great energy of the disturbing power to which they have been subjected; and we can thus understand the great probability, that in those early days the atmosphere may have been loaded with carbon sufficient for the rankest vegetation imaginable, while yet there were no animals whose lungs were fitted to breathe an atmosphere so deleterious to the existence of the present races.

The position of our coal beds, with reference to the rocks of the earth, is another subject of interest. Unlike the metals, it is found in sheets of greater or less thickness lying between the strata of rock, and conforming as a general rule to their curves and inclinations. We therefore never expect to find a coal bed extending down to a great depth *through* different rock-layers; but this at one time was not generally understood. There are citizens of Philadelphia who can well remember when the Stock of the Lehigh Coal Company fell twenty per cent. in market, upon learning that their workmen had reached the bottom of their coal

at the depth of sixty feet! They little knew that what was lacking in depth was more than compensated by the area of their mine.

An English Geologist says that "Coal Fields are of limited extent, and their strata frequently dip towards a common center; being often arranged in basin-shaped cavities which appear to have been originally detached lakes, gradually filled by repeated depositions of carbonaceous and mineral matters." But this statement applies mainly to the Coal Mines of England and the Continent, the only coal fields the writer had seen. This description is applicable to the Anthracite fields of Pennsylvania; but is wrong as to the great Bituminous Coal Fields of the West. There the Coal lies in nearly horizontal strata, and as a general rule presents little of the basin shape, unless it be upon an immense scale, limited only by the Gulf of Mexico, the Great Lakes, the Alleghenies, and the Rocky Mountains. Even in the Allegheny Mountains the Bituminous Coal is found near their tops, and passes through from one side to the other nearly on a level. As already intimated, the anthracite coal fields differ from this, and correspond very nearly with the European coal fields.

We are all familiar with the basin shape of this valley; and the southern coal field, embracing Pottsville and Mauch Chunk, corresponds with this, except that it is more elongated in proportion to its width; and though in that part of the middle coal field embracing Hazleton and the neighboring collieries, some of the coal is found upon high table-land, yet it lies in the form of basins filled to the edge with earth and rocks. They seem to have formed the *bottom* portions of larger basins; their ancient boundaries or upper portions having been swept away. To this marked difference between the geological features of our bituminous and anthracite coal fields, has been attributed sometimes the difference in the qualities of the two kinds of coal. Viewed geographically, and upon a large scale, the bituminous coal of this

country is found to occupy the immense area of country watered by the Mississippi and its tributaries; while the anthracite coal fields of Pennsylvania, in comparison, are mere outlayers and small patches of the larger field, broken off from its edge and contorted by powerful disturbing forces. The coal of the larger field lies comparatively undisturbed, and is bituminous in its nature; but the anthracite has been evidently disrupted, disturbed, and bent into various forms, by which it is supposed its bituminous and volatile matters have been driven off, or suffered to escape. This idea strikes the minds of some as a reasonable explanation of the difference between the coals; but they forget that the bituminous coal fields of England present the same geological features as our anthracite fields; in fact, the English coal has been more thoroughly disturbed by volcanic action, without changing at all its bituminous character. We cannot, therefore, attribute the superior character of the anthracite to a cause which has not produced the supposed result in other instances. The reason why the anthracite is not bituminous, like its great neighbor, is yet unknown to us; and we must await patiently the further development of facts before we can solve this mystery to our satisfaction. At present we have but one or two leading facts for our guide. We know that where trap rocks in England have been sent up, in a melted state, *through* bituminous coal beds, their *heat* has turned that coal into anthracite,—sometimes for five or six feet on each side of the trap. We are then taught, that heat, attendant upon the great revolutions in the earth's crust, *has* changed coal from bituminous to anthracite; and the heat attendant upon the ancient disturbance of our coal measures, may have given the anthracite character to our coal. If this, however, be true, why did it not cause all the coal of England to become anthracite, as well as ours? The reason may be this: The Island of Great Britain has evidently been raised up from the depths of the ocean; and if the disturbance of its coal measures occurred during its sub-

mergence, water, by checking the attendant heat, may have prevented a change in the character of the coal, except in the particular instances mentioned. But shall we be told this cannot be; that the vegetation which formed those English coal beds could *never* have grown under the ocean? This is true; but there is abundant geological evidence, proving clearly that after that vegetable carbon was formed and deposited, the Island was in fact submerged, and hundreds of feet more of solid rock was deposited in water *above* the coal; and in what water, but that of the ocean?

The geological position of the anthracite is also peculiar. Thorough surveys have been made on every side of us, and the fact is now evident that it occupies the highest strata of our rocks, and seems to have been the latest or youngest formation in this part of the earth's crust. All the other rocks of the earth *here* seem to be below the coal measures; but this may be called a local peculiarity. To understand this better, we must look at the earth's rocks, and they have been so carefully studied as to admit now of a clear and simple classification in their proper order. The lowest class is what are generally called the primary rocks, embracing granite, the very lowest and foundation of the whole; and also the gneiss and micaceous slate, overlaying the granite, and consisting of the same material. These rocks in Pennsylvania are found near Philadelphia; some strata of the micaceous slate and gneiss being used in that city for flagstones, and may have attracted the attention of some here by their bright and shining appearance, attributable to flakes of mica, so abundant in some of them. These rocks contain no fossil remains of plants or animals, and the granite is generally crystallized.

Over these lie the "secondary rocks", embracing even the coal measures and all below the coal to the primary rocks just described. But other names are also given to these strata. Taken together, they are sometimes called the "primary fossiliferous" strata, because they are the first class of

rocks above the primary, which seem to have been deposited in water, and that contain fossiliferous remains of plants and animals. They are also sometimes called the "Devonian system" of rocks, because they correspond in age and character with the rocks prevailing in Devonshire, in England. The classification of this large group of rocks into smaller divisions is also various.

We find, by examining closely the borders of our valley, that the coal is underlaid—

1. By a conglomerate rock composed mainly of water-washed quartz pebbles, bound together by a silicious cement. This rock varies in thickness in different places from one to two or three hundred feet. Prospect Rock on yonder mountain, so well known to this community, is a fair specimen of its character, and forms a part of it in that direction. It underlies all our coal, and sometimes is in close proximity to it. It forms the basin or trough containing the coal measures; and when we speak of coal measures we mean not only the coal, but all the rock lying between the beds and over them to the surface. We have then from the top downwards, first the coal measures and then the conglomerate.

2. Next below the conglomerate, is a stratum of gray sandstone of ordinary texture, and perhaps one hundred feet in thickness.

3. Next under this, is a thin stratum of variegated lime stone or marble; varying in thickness from two or three, to six or eight feet. It is of a light blue color where it has been quarried, but with numerous red spots, owing to the red sand mixed with it; and this is so abundant as to render it useless for lime. It cannot be so burned as to slack sufficiently for that purpose.

4. Immediately under this lime is found the "old red sandstone" of our quarry men and stone masons. It is old only in comparison with the higher sandstone, for the "old red sandstone" of Europe is far below it. With this stone our streets are flagged. Its thickness varies, but generally

it may be set down at two or three hundred feet. It is interesting to examine a piece of this rock, broken across its stratification. Its different layers of different colored sands are then plainly discovered and the whole looks as if we had gone to the pure sand bars of the river and cut out a block of water-washed sand; and as we walk our streets and look down upon these stones we see there, in all their variety, the marks of waves and the gentle ripples that ruffled the surface of those sands countless ages ago, when the earth was being formed, and was gradually assuming its present shape and structure.

5. Lying next below the red sandstone is the "red shale", well known to us for its great thickness—perhaps a thousand feet—and for the readiness with which it yields and crumbles under the effects of frost and water. Thus broken, its debris, at a short distance, resembles broken hemlock bark, and we have a fine specimen of it in the ledge below Nanticoke Dam, on the Susquehanna.

6. Under this "red shale" lies a yellowish green sandstone and other rocks of various colors and qualities; extending down many thousands of feet to the primary rocks already mentioned. They are sometimes called the upper and lower silurian rocks, because they correspond with the rocks of that name in England.

Doct. Rogers, who made the geological survey of this State, divides all of these rocks below the coal and above the primary rocks, near Philadelphia, into twelve classes or varieties; and he estimates their united thickness at 42,200 feet, or about eight miles. They have all been deposited in water; and contain impressions of shells, plants, trees, fish, and animals of the lizard and crocodile type, and nearly all are of species or kinds now extinct.

To describe these different classes of rocks more minutely would be tedious to many, and unprofitable; but we may mention that in their wide range is found the limestone of the Great Valley, in Chester county; the Schuylkill marble;

the zinc ore of the lower Lehigh; and the iron ores of Lehigh, Berks, Lebanon, and Cumberland counties; with the iron and lime of Montour; and the slates of Lehigh and Northampton. It is indeed a wide range of rock that embraces so large a variety; but it has a character of its own, as a class, well defined by position and fossil records. It is found northeast of this Valley, sweeping around us through Pike, Wayne and Susquehanna counties; and filling up the whole country northerly of us, between this coal field, and the same primary rocks of the Great Lakes. It is this fact which proves the coal measures to be the highest and latest formation in this region of country. The rocks bordering the South side of the Valley have already been sufficiently described. They all dip to the North, and evidently pass under the coal; and when we go to Dial Ledge, on the North of the Valley, we find the same rocks in precisely the same order, cropping out from under the coal. And as we go up the Susquehanna, or along the North Branch Canal, we meet with them all, at first highly inclined or dipping rapidly to the South, and under the coal, but as we advance they become less and less inclined, until they are nearly level, except where they have been affected by local disturbances.

These, then, are the general geological features of this part of the country; but they are only a part of the geology of Europe. There the same lower secondary formation is found, including the coal; but over their coal is a large formation of rock called the Tertiary, which hardly exists here, except in distant patches. The Englishman, when he searches for coal, must look far below the upper rocks of his island. He first finds the tertiary rocks; below them the chalk, the green sand, the wealden, three classes of Oolite, the lias, the upper and lower new red sandstone, and magnesium limestone. Under all these he finds the coal, and under that the remaining lower secondary and primary rocks, in character very much as we have described them here. Thus their coal is far below their surface rocks, and they must dig

for it, as a general rule, several hundred feet. The exception to the rule is where the coal crops out; but notwithstanding this advantage is afforded them in some localities, their workings sometimes extend to nearly or quite 2,000 feet below the surface.

Here, on the contrary, the coal is near the surface. The beds crop out to daylight in numerous instances, and in many others ascend the mountain sides, and central hills, affording the greatest facilities for mining operations. The structure of such a coal field as this, affords a subject of curious and lasting interest. We shall not for a lifetime understand it thoroughly. It is too various and complicated; and yet its general features are easily understood. Within this great basin of conglomerate rock, surrounding and underlying all the coal, and extending sixty miles in length, by four in breadth, lie snugly deposited all our coal measures; embracing not only the different coal beds but the alternating sandstone, clay, shale, and slate rocks, lying over and between the coal beds. This is the general arrangement; but we have within this coal basin, upon a small scale, many of the disturbances, derangements and changes, which seem to have befallen the geological world without.

We have mountains, upon a small scale, within the Valley; and in them we find the strata of rock and coal raised up, evidently far above their original level. Often they are distorted and broken, and sometimes the lower rocks are pushed up through incumbent, but broken and separated strata of rock and coal. It is thus that coal beds are found in a few instances to have doubled over; or to have settled back upon themselves, and swelled into a mass in some localities much beyond their general thickness. The ancient waters have also done their work. In a few instances portions of a coal bed and its accompanying rock are found to have been swept away; and in other places wide gaps have been made in them and again filled by drifts of sand and gravel. But these features are the exceptions to the general rule of reg-

ularity and order. They indeed afford subjects of study, and also sources of difficulty, danger and disappointment to the miner; but on the other hand they often facilitate his operations; bring the coal to his view, tempting him with its riches, and encouraging him on to great and successful undertakings that he would not otherwise have ventured upon.

These disturbances have given rise to the different modes of working coal; as, first, by stripping off the roof where it is sufficiently thin, and then digging the coal as in a quarry; secondly, by drifts or tunnels at the base of hills; by slopes following the coal down from the outcrop; or by shafts sunk perpendicularly upon the coal. Judgment and skill should be used in adopting at each locality the appropriate and most economical and efficient mode; and of all methods, that of the perpendicular shaft is the most complicated, but often the most effective, and economical. The shaft must be large and divided into two divisions by a tight partition of wood or brick. Down one of these divisions the men and cars are always sent for the coal and therefore it is called the "down-cast shaft", by the miners. In the other division the pump is placed to drain the mine by pumping out the water if necessary; and up this division the bad air of the mine is forced by a fire kept up within its base, and hence it is called by the miners the "up-cast shaft". This fire, at the base of the up-cast shaft, creates an ascending current of air through it from the mine below; and the result is, that the fresh air falls *down* the other division to supply the vacuum thus created in the mine. At first the air simply descends the down-cast shaft and ascends the other; and, to be benefitted by it, the workings of the mine must be so commenced, and carried forward, as to enable the workmen to conduct the fresh air through all the working chambers and passages, before it is permitted to return to the up-cast shaft. To this end idle chambers and old workings have to be shut up by partitions of wood or brick. Even

working chambers have to be thus closed for the purpose of conducting fresh air to other parts of the mine where it is needed; and this involves the trouble of making doors in such partitions, for the passage of workmen and their cars, on their way to and from the down-cast shaft. These doors when shut must be airtight; and as they disturb the circulation of the air when open, by changing its course from where it is wanted, they must be quickly opened and shut upon the passage of each car. Small boys, called trappers, are therefore placed at these doors from morning until night, for no other purpose than to open and shut them, as each car shall pass through.

Imagine, for one moment, the condition of a mine of considerable depth and extent, like a few in this country and many in Europe. "It may be many hundreds of feet below the surface, with the workings extended to a great distance; the machinery perfect in all its parts; the mining operations under a regular and rigid discipline; with railways diverging from the down-cast shaft in every direction; the stoppings, passing doors, brattices, and the whole economy of the mine so arranged, that every part of the work is performed like a well-regulated machine. To see a mine of this extent at full work, is a scene of spirited animation; and of wonderful industry. The 'sound of the hammer' is heard in every quarter, and the numerous cars, loaded and unloaded, passing to and from the wall faces to the shaft, are driving and thundering along in every direction. * * * Every one is at his post; added to which there is a degree of cheerfulness pervading the whole scene, which could scarcely be expected in a place wearing so sombre an aspect."

But with all this there are sad drawbacks to these enjoyments. There is death in these workings, to be met with in almost every form. We hear almost every week of sad accidents from various causes; and yet *we* are comparatively free from the most appalling. Notwithstanding all

the arrangements for ventilation, here but briefly sketched, mines are often full of the most deleterious gases.

One kind the miners call "choke-damp". It is well known to chemists as carbonic acid gas, and emanates, no doubt, from the coal. It consists of equal portions in volume of oxygen and carbon, and is produced artificially from mineral water fountains, by pouring water and chlorohydric acid upon chalk or pounded marble. It is heavier than common air, and can therefore be collected in open glass jars, and poured from one into another. In this gas fire is extinguished as if dipped in water; and if breathed death is the certain consequence. From its weight, it always occupies the lowest part of the mine; and as it accumulates it rises higher and higher, until the whole mine is filled. It often happens, that when a miner sets his lamp upon the floor of the mine it is instantly extinguished; or in going through some deserted chamber of the mine his lamp, though carried in his hand, is extinguished; and the miner is thus mercifully warned, that he is literally wading through a flood of deadly gas; and that he must escape for his life. When breathed it kills by a specific poisonous influence upon the system; and yet it can be drank in mineral waters; not only with impunity, but with pleasure and advantage.

At the freezing point of temperature, and under a pressure of five or six hundred pounds to the square inch, it is compressed into clear limpid fluid, not as heavy as water; but which freezes by its own rapid evaporation into a white snow-like substance. This is but one fatal enemy of the miner; and once discovered in his workings, immediate measures are taken to drive it out, by changes in the air current of the mine.

Another most fatal gas met with in the coal mines is called by the miners "fire-damp". It is the carburetted hydrogen of the chemist. It is sometimes called "marsh gas", because when the water of a marsh is stirred bubbles of this gas rise to the surface, and it may thus be gathered in tolerable pur-

ity. It is composed of equal parts of carbon and hydrogen, and is only about half the weight of common air; and when mixed with it, can be breathed without imminent danger. It burns with a yellow flame, and when mixed with atmospheric air in the proportion of one of gas to eight of air, it explodes with great force; but fortunately this explosive point of combination is not always attained in the mines; or is soon passed, before accident applies the fatal match. This was the miner's main security, before the days of the safety lamp. If this peculiar combination of circumstances, necessary to produce an explosion, had frequently occurred, the miners would have been driven forever from their work. But they encountered its dangers in another form.

From its lightness this gas rises to the upper part of the mine, and fills its upper chambers, extending down as it accumulates; and if, as in most cases, it is not mixed with atmospheric air to the explosive point, it will yet burn with great fury if fire is brought in contact with it, but without explosive force. The upper part of the mine is then filled with a surging flame; and the miner can only escape if he is under it, by throwing himself flat upon the floor until it is over; and then his peril is only the more imminent. If he is not burned beyond exertion, he must flee instantly from the "after-damp", which immediately follows. This "after-damp" is the same "choke-damp" or carbonic acid gas already described; but the miners call it "after-damp", because it always follows immediately, the burning of the fire-damp, or carburetted hydrogen. The explanation is this. At one moment there may be no choke damp in the mine, but the upper part is filled with fire-damp, not mixed so exactly with common air as to explode; and yet it will burn. In this condition of things a lamp carelessly opened sets the whole in a blaze; and in burning, the oxygen of the air unites with the carbon of the fire-damp, and forms the carbonic gas or choke-damp, which being heavier than the air instantly falls; and if the miner cannot or does not escape, he is suffocated.

Fortunately for us the Anthracite coal does not seem as productive of these gases, as the Bituminous coal of England. We have had here a few accidents, but very few as yet, owing, perhaps in a great degree, to the proximity of our mines to the surface, and their more perfect ventilation in consequence. But in the mother-country these dangers and difficulties were encountered, in all their horrors, for more than a century. "With almost daily misfortunes, of a greater or less degree, the collieries of England were carried on; while every one was struggling against the danger; but with baffled skill, and unavailing precautions. At last an explosion occurred at Felling Colliery, near New Castle, which threw all others before it in the shade. That mine was 600 feet below the surface, and twenty-five acres of coal had been worked out. Upon the 25th of May, 1812, 121 persons were in the mine and had taken their places at work, when the gas was fired, and a tremendous explosion followed." I quote from a contemporaneous account. It says: "The subterraneous fire broke forth with two heavy discharges from the deep-pit, and these were instantly followed by another from the rise pit. A slight trembling, as from an earthquake, was felt for half a mile about the colliery; and the noise of the explosion, though dull, was heard from three to four miles distant. Immense quantities of dust and small coal accompanied these blasts, and rose high in the air from the pit's mouth, in the form of an inverted cone.

"The heaviest part of the ejected matter, such as corves, wood, and small coal, fell near the pit; but the dust borne away by a strong west wind, fell in a shower at the distance of a mile and a half from the pit. In the adjoining village of Heworth, it caused a darkness like that of early twilight, and covered the roads so thickly, that the footsteps of passengers were imprinted in it. The heads of both shaft frames were blown off; their sides set on fire, and their pulleys shattered to pieces. Such were the fearful volcanic

effects in the mine and atmosphere. The viewer and his assistants, instantly descended, in the face of the most imminent danger—eager to save as many of their people as possible—but the mine was found to be on fire, and it was impossible to proceed.

“Only thirty-two, of the one hundred and twenty-one persons in the mine, were drawn up alive. In consequence of the fire within the mine, another explosion took place, and no other alternative was left but to close the mine, in order to extinguish the fire; although they knew that some of the men within might yet be alive.”

To us, this idea is horrid; but we must remember that Bituminous coal burns in the mine, with a facility unknown to us in the Anthracite. Had not the fire in this mine absolutely precluded all progress towards the relief of the lost, the duties of the manager, or viewer, would have still been appalling. The miners' houses are generally not far from the mines; and “the instant an explosion takes place, the alarm is general, and the wives and relations of those in the mine rush to the shaft in a state of distraction; where a heart-rending scene takes place, that can be imagined but not described. All the violent effects of sudden grief are the consequence. They look to the horrible pit, where those who are most dear to them are entombed, and who, but a few hours before, left them in health and vigor, with the hope of returning happy to their homes.

In such a case, the mining engineers have a severe and imperious duty to perform. The shaft they must descend is either rendered dangerous by the wreck of loose timber torn away by the eruption, or the air is in a pestilential state; and what is still more alarming, part of the coal may have taken fire from the explosion, or a blower may be lighted, either of which will produce repeated and violent explosions, the instant the gas accumulates to that point and comes in contact with fire. Such a case was not unfrequent, and against this no human skill could guard.

All this had to be encountered by the engineer and his assistants. The hope of saving some of the workmen from death; and the ardent entreaties of the agonized relations, place the consideration of personal safety out of the question.

On descending to the bottom of such a shaft, it is perhaps with great difficulty the mine can be entered, owing to the wreck. If the descending current of air is good, part of the wreck is cleared away. The engineer then considers what are the best immediate plans to pursue, arising from his experience, and his knowledge, not only of the general situation of the workings, but of the direct lines of the air course; so that he may in the shortest time restore the ventilation, and if possible, relieve the miners who may yet be alive. Having formed his plans, he states them to his assistants; and a large quantity of prop wood and brattice boards are sent down, and the party enters the mine as far as the air will allow them; care being taken to have it with them every step as they proceed. As the violence of the explosion destroys many of the stoppings, and almost every door upon the air courses, the whole circulation is laid dead. All these doors must be replaced, and the brattice repaired where torn, as they advance forward with the air; and this work, being in general executed with astonishing quickness, many lives are sometimes saved. The overmen and their deputies often exhibit great dexterity. They will work in the dark with the wreck of one destruction around them, and threatened every moment to be overwhelmed in another; but the hope of saving a fellow-workman from death, gives the liveliest energy to their actions; and if they think that a bold effort will save life, they will rush into the midst of pestilential air, and grapple with death. The mining engineers are always at the head of this service, and as they, with their assistants, frequently push forward in the dark, it is no uncommon thing for them to drop down senseless while those in the rear seize them and draw them back to better

air; yet no sooner are they re-animated than the same generous impulse acts in its full force, and they make the same attempt again and again until nature is exhausted; and many fall a sacrifice to their bold and generous exertions. When it is ascertained that fire exists in the wastes; or that the solid coal is on fire, the descent into the mine is rendered tenfold more hazardous, as a moment's safety cannot be depended upon;" for if the discharge of gas is great, repeated explosions are then sure to follow, and sometimes they have been repeated as often as once an hour. "In such cases no man dare go down, as his destruction would be inevitable;" and the mine must be closed up, as in the case just described, as occurring at Felling. This account is here inserted because it was among the last of the great explosions in England; for that fatal misfortune, aroused the minds of every one connected with collieries, to discover, if possible, some preventive of such disasters; and they were successful. I need not detail the history of those efforts. It is enough for our present purpose to know, that Sir Humphrey Davy and Mr. Stephenson, at the same time discovered the fact that the flame of a lamp or of a fire, will not penetrate though a small tube however short; and it followed as a matter of course, that as a fine wire gauze, is only a sheet of small adjoining short tubes, the flame of a burning lamp, or of gas burning within such a gauze cover, would not pass through so as to communicate fire to the surrounding gas without; and this is the simple construction, and effect of the celebrated "safety lamp"; called by the miners their "little Davy", in allusion to the inventor. It is made of metal, with closely fitted joints; and instead of glass sides for the transmission of light, a fine wire gauze is used.

With this lamp a miner can walk into the midst of inflammable gas, ready to explode like an immense magazine of powder. In such cases, the first symptoms he discovers of its presence, is the elongation of his lamp flame; and if he persists, his lamp is soon filled with the flame of the burning

gas. He then takes the alarm and makes his escape; and immediate measures are resorted to, to expel the gas from the mine. An easy experiment tests the efficiency of this lamp, to a common observer. If a piece of fine wire gauze is placed in the flame of one of our gas lights and within half an inch or more of the point, the flame is cut off by it as effectually as by a sheet of metal. If held an inch or less above the burner, the blaze will not pass through it; but unburnt gas passes through, and may be lighted on the upper side of the gauze, by a candle or match. A tight glass lamp would not secure the miner's safety. It must be open to the admission of air, or it will not burn. If the air is suffered to enter, the gas enters also; and if its sides were of ordinary glass, they would be broken by the heat of the burning gas, when the whole mass would take fire. The same danger exists, but in a less degree, with the wire gauze. If the bearer of the lamp, is unobservant of the warning flame within, or remains too long in the gas, the wire may be burnt out or become so heated as to fire the gas without.

Besides this, the gauze is so fine as to yield but little light. It was a dark lantern, and for this reason miners disliked to work by it. It was in use, however, from 1815 up to the present time; but in 1849 a great improvement was made upon it. They ventured then to introduce into its sides a ring of thick glass opposite the light, leaving the gauze above the glass as before. This gave the lantern a double value, almost; and yet its great utility consists in their being able to test with it, in safety, the existence of gas in the mine; and if found there, to expel it by a better ventilation. These experiments are made generally in the morning, before the laborers go into the mine; and sometimes during the day at different hours, as the abundance or scarcity of gas may render prudent. With these precautions, by the help of this lamp, few accidents, comparatively, now occur; and, generally, the injuries they now inflict are of limited extent. Before the improvement of the lamp, accidents occurred

through the carelessness of the workmen, in throwing open the lantern incautiously, to obtain a better light. But often they received censure, when they in fact deserved sympathy; for besides the gasses already described, there is found, sometimes, in the mines, a mixture of nitrogen gas, which, if long breathed, induces a stupid, dreamy condition of the mind. In this condition, the miner works more by instinct or habit than by judgment. He feels that the air is bad, but not always knowing the reason, works on, and sometimes does things without a thought or a motive. But notwithstanding all these difficulties, they seem small indeed in comparison with the terrible disasters which so frequently happened before the days of the "safety lamp". An English writer has said that its invention produced a new era in the coal mining of England. To science, this country as well as England, is indebted for this useful invention. The benefits derived from this lamp alone are incalculable, and yet the inventor received no substantial reward—nothing but reputation, and the feeble, fitful gratitude of a few out of the millions whom his labors have blessed. We speak thus of Sir Humphrey Davy, whose scientific knowledge led him to the invention; but Geo. Stephenson, then a mining engineer, also invented, by experiment, the same thing precisely, and at the same time. His lamp was also presented for the prize, in competition with Sir Humphrey's, but it had in it the glass ring, and the small prize offered was given to Sir Humphrey—so partially and unjustly, many thought, as to induce a private subscription.

LECTURE II.

In 1762 this Valley of Wyoming was first settled by people from Connecticut principally. They of course soon found coal at its numerous out-crops and exposures. Doubtless they tried to burn it, but could not. Some of them probably, had seen English Bituminous coal; for it was then sold in several seaports in small parcels, and for particular

purposes; and it was generally called "sea-coal," because it was brought over the ocean. Some of the New England people, who came into this Valley, no doubt were aware of this. They must have known also, that Englishmen had a kind of coal—now known to be Anthracite—which they could not burn; and which, for that reason and its hardness, they called "stone-coal." How natural then that the early settlers here, not being able to burn this Anthracite, should give it the same English name of "stone-coal."

Subsequently to this Obadiah Gore and his brother, came from Connecticut and settled in this Valley. They were blacksmiths, and had their full share of the ingenuity and enterprise, attributed generally to their countrymen. It was not long before they tried this coal in their shop fires, and their success in using it to advantage is well known. This was in 1768-9, as Mr. Gore, himself, informed Judge Fell; so the latter has stated, in his letter printed in Hazzard's Register. After the Gores had succeeded, other blacksmiths tried the experiment, and it was soon used by them throughout the Valley.

Not long after the Revolutionary War commenced an armory was established at Carlisle, in this State; and several blacksmiths and gunsmiths were employed in fitting up arms for the troops. Some of the workmen had, perhaps, used coal in England and desired to use it again. Whether either of the Gores already mentioned were with them is now unknown, but it is certain that in 1776, and afterwards during the war, two Durham boat loads of coal were annually taken, from what is now Col. George M. Hollenback's coal mine above Mill Creek, to where Harrisburg now is; and being landed upon the west side of the river was drawn in wagons to Carlisle, and there used in the armory. A Mr. Geer then owned the property where this coal was mined. The late Judge Hollenback purchased it of him about the year 1778; and but a few years before his decease pointed out the spot where this coal was mined to his son, Col.

Hollenback. It was then filled up and quite large trees were growing upon the ground. It was near the bank of the river, below the canal, and nearly opposite the present openings of the mine. Only a few years since Col. Hollenback employed some men to re-open the coal at that place, and in three or four days the old working was found, and convinced him of the accuracy of his deceased father's recollection.

From the Revolutionary War long years elapsed before it was used in grates or stoves. All attempts thus far to use it as a household fuel had failed; but as it burned well upon the blacksmith's hearth, there was a strong feeling among people of intelligence that it ought to be burned upon the domestic hearth. Various were the suggestions made; but as a strong blast of air was supposed to be necessary to its combustion, the thoughts of men were turned to the adoption of some expedient for its supply. Some thought of burning it in grates, such as we now use, by means of an air tube, passing from under the grate through the hearth, so as to let a supply of air come up from below. Others, who thought such a supply would not be sufficient, supposed it might be increased by clock-work machinery, driven perhaps, by a weight or a spring. But the rotary fan was not then in use, and as only the common bellows were thought of, others supposed that the necessary machinery, however simple and cheap, would cost more than the fuel would be worth, and none were willing to try the experiment. Such were the speculations listened to by the children of that day; and well remembered by the most aged fathers and mothers of this. But these speculations were yet to bear fruit. The late Judge Fell, well remembered in this community, was a member of the Society of Friends, and had emigrated from Bucks county to this Valley. For some years he was the proprietor and keeper of the best Hotel in this town, now occupied by Philip Heisz, and situated in Northampton street. A part only of the old build-

ing is left; the largest portion having been torn down and replaced a few years since by a brick addition. For many years, and up to his decease in 1830, he was an Associate Judge of our Courts, and a gentleman of intelligence and probity, highly useful to the community in which he lived; and though of modest, unassuming manners, he possessed a sound judgment, and an enterprising mind and spirit.

He believed that our coal could be burned in grates. He judged correctly that the natural draft occasioned by a fire would be sufficient, if the coal in sufficient quantity were only placed in a proper position. It is rational to believe that these were his views; for the first experiment known to his descendants now in this town, was made with a wooden grate, very much of the form of those now in use. It is amusing now to think of burning coal in a *wooden* grate; but his logic and economy were based upon sound principles. He reflected, no doubt, that if he could make his coal burn so freely as to destroy his wooden grate, he could then well afford to make one of iron; and could do so without fear of loss or disappointment.

We know not the result of this first experiment, or anything of the particulars; but the inference is reasonable that he succeeded, for his next experiment was more public. One of his daughters, the lady of Col. J. J. Dennis, lately deceased, told me that she well remembered the circumstances attending it. The Judge was a practical man, and something of a mechanic. She recollected his going into the blacksmith shop of his nephew, Edward Fell, and of his working with him most of the day, fashioning his first iron grate.

Late in the afternoon he brought it home, and setting it with brick, in the fire-place of his bar-room; by evening he had kindled in it with oak wood one of the best of coal fires. The interest it excited, and the many visits of curious neighbors, anxious to see a stone-coal fire, were also well remembered by Mrs. Dennis. I was an inmate of her house, when

these facts first came to my knowledge. I had taken down from their library a book entitled "The Free Mason's Monitor," and found upon one of its fly leaves, the the clear, bold hand-writing of Judge Fell—which I had learned to know from the Records of our county—the following memorandum:

"Fe'b 11th, of Masonary 5,808, Made the experiment of burning the common stone-coal of the Valley, in a grate, in a common fire place in my house, and find it will answer the purpose of fuel; making a clearer and better fire, at less expense, than burning wood in the common way.

[Signed] JESSE FELL."

Borough of Wilkes-Barre,

February 11th, 1808.

A memorandum, I may add, most certainly replete with interest; and one which I would respectfully suggest should be engraved upon his monument in our Cemetery.

In confirmation of these facts, Judge Bennett, of this Borough, furnished me with the following statement. It is an extract from a brief article upon coal, published in the United State Gazette in May, 1830. It says:

"A gentleman who had heard Judge Fell describe the progress of his experiment, has mentioned to us, that the Judge fashioned his first grate of green hickory; and having satisfied himself, that the general design was good, he aided a blacksmith in forming an iron grate which he placed in the barroom of his house. As no little amusement had been excited at the Judge's exertions to burn coal, he determined to make a suitable exhibition of the first attempt in the new grate, and accordingly gave notice to a large number of the most respectable citizens, that on the succeeding evening, his experiment would be tried.

"The evening came, the fire was kindled, and the coal burned with unexpected brilliancy; but only two or three of his neighbors came to witness the experiment. The others, supposing the Judge had found the fallacy of his

plans, and intended to take a little innocent revenge upon them, very prudently tarried at home, with a view of laughing at those of the invited, who might have been more yielding than themselves."

"If so, we may add, that they were themselves hoaxed by their own suspicious prudence. But "how the Judge succeeded," says the writer quoted, "and what have been the consequences—are not these things written in every room of our city from October to April."

I find that an impression exists in the minds of some in this Valley that the wooden grate was constructed only for a model to guide the blacksmith in making the iron grate. Perhaps this very article above quoted, and published nearly thirty years ago, may have given rise to this impression; but it should be borne in mind that Judge Fell did not so state the fact. In truth, no model was necessary, particularly as the Judge helped the blacksmith himself; besides, if he had decided to make a model, it could have been made just as well, and much easier, of pine; and as we have the Judge's authority for the fact that it was made of green hickory, the inference is almost conclusive that it was not a mere model, but designed to resist the action of the fire as long as practicable, and until the coal should burn it down. It was this experiment only that could have given him that confidence which he exhibited by inviting his neighbors to witness the experiment in his iron grate. He unquestionably knew at the time of his invitation what would be the result, and that he incurred no risk of further raillery upon the subject. This more full account is here given, because the Judge himself, in his letters printed in Hazzard's Register, evidently did not undertake to mention all the particulars, for those letters are more brief than was his verbal statement above quoted.

We have then the important and undoubted facts, that the coal of this Valley was known to its people, and used in blacksmith's shops long before the revolution; that during

the war, it was sent down the river, and used at the Government Armory in Carlisle; and that on February 11, 1808, its use in grates, for domestic purposes, was commenced in this town, by Judge Fell. Immediately following this new development of its usefulness, the coal for the supply of this town was brought from Col. Lord Butler's coal bed—now the Baltimore Company's—two miles distant. The work at that bed was commenced at the out-crop of the coal, and was carried on, by stripping off the roof, and digging the coal as in a quarry. This mode of mining was then adopted because the workmen did not understand, or were afraid to pursue the present mode of working under the rock. Of course this mode of mining was expensive; and Col. Lord Butler's books show, that he was paid three dollars per ton for coal delivered in town. Subsequently, more skillful miners arrived from abroad; and by working under the rock the cost of coal was cheapened.

At that day, the Hon. Chas. Miner was publishing in this town "The Luzerne Federalist"—the only newspaper then printed in this part of the State. I have had the pleasure of examining its files, but I found nothing published in 1808 respecting coal. Mr. Miner was then a member of the Legislature; and at the time of Judge Fell's successful experiments, he was in Lancaster, attendant upon his public duties.

The first notice discoverable, was in 1810, when William Curry advertised for sale, "An extensive coal bed, situated in Plymouth, one mile from the river," as he said; and as he described himself as a Lawyer, residing there and ready to attend to the business of the profession, we learn how early Lawyers were given to dabbling in coal lands, though they sometimes burn their fingers thereby!

In striking contrast with these facts, is the history of the "coal trade" in the neighboring coal fields. According to a recent writer in Harper's Magazine, it was not until 1810 that Col. Geo. Shoemaker, of Berks county, succeeded in prevailing upon the blacksmiths along the Schuylkill to use

the anthracite in their forges. At that very time, coal was sent down the Susquehanna from this valley in arks; and the account books of the late Crandal Willcox, of Plains township, show that as late as 1814, he sold his coal in Marietta at \$8.50 per ton—proving most conclusively that its merits were then highly appreciated, in that part of the State. They had probably learned its value from the blacksmiths of Carlisle; and were also prepared for its early use upon the domestic hearth.

The history of the trade on the Lehigh differed materially from that on the Susquehanna. According to the same writer before referred to—Phillip Ginther, an old hunter upon the Lehigh, found the coal of Mauch Chunk in 1791. He communicated his discovery to Col. Joseph Weiss, then residing at what is now Weiss Port, six miles below Mauch Chunk. Col. Weiss soon after, obtained the title to about 6,000 acres of the land, now comprising the principal property of The Lehigh Coal & Navigation Company; and through the influence of Robert Morris, the revolutionary financier; and that of Charles Cist, Esquire, then an editor of Philadelphia, "The Lehigh Mine Company" was formed; but it was not until 1803 that six ark loads of coal were started from Mauch Chunk for Philadelphia. Of those six only two arrived in the city, and then their cargoes could not be sold. At length, after keeping the coal on hand for some time, the city authorities were induced to buy it for a steam engine used in pumping at the water works; and the same writer states that "all their attempts to burn it proved unavailing. Disgusted at what they esteemed a nuisance, they caused what remained to be broken up and scattered over the foot walks of their grounds; and here and thus ignominiously," he says, "terminated, for seventeen years thence ensuing, the operations of The Lehigh Coal Mine Company." And Col. Weiss, according to the same account, labored for years in vain, to induce the blacksmiths of the Lower Lehigh to use it in their forges. The fact was, the

Philadelphians and the people of the Lehigh were *behind the times*; they did not take the Wyoming newspaper!—and suffered the natural consequences of such a blunder!

I have been greatly interested in turning over their old files. Politics, and the stirring events of the European and American wars, furnished ample materials for their columns; but home subjects were not forgotten.

In 1813 Mr. Miner was publishing "The Gleaner" in this town; and in a long editorial article from his pen, under date of November 19th, and the head of "State Policy," he urged with great zeal the improvement of the descending navigation of the Susquehanna and Lehigh rivers. He then said:—"The coal of Wyoming has already become an article of considerable traffic with the lower counties of Pennsylvania. Numerous beds have been opened, and it is ascertained beyond all doubt that the Valley of Wyoming contains enough coal for ages to come."

He then goes on to speak highly of its quality, and says further:

"Seven years ago our coal was thought of little value. It was then supposed that it could not be burned in a common grate. Our smiths used it, and for their use alone did we suppose it serviceable. About six years ago one of our most public spirited citizens made the experiment of using it in a grate, and succeeded to his most sanguine expectations."

Again, in the same paper issued on the 31st of December, 1813, in an article headed "The prosperity of Philadelphia," Mr. Miner wrote of the objects to be accomplished for her advantage:

1. The connection of the waters of the Chesapeake and the Delaware—since accomplished.

2. The connection of the Schuylkill with the Swatara—since much more than accomplished by the Union Canal; and

3. The opening of a communication from the Susquehanna to Philadelphia, by a road or *railway* from Wilkes-

Barre to the Lehigh, and thence by that river to the Delaware, and thence to Philadelphia. "I have visited," he said, "Lausanne and a number of other places on the Lehigh, having particularly in view, to ascertain the real situation of its navigation."

Then, in the next issue of the same paper, there is another editorial by Mr. Miner, headed "Navigation of the Lehigh," and occupying two and a half columns of the paper. In it, he wrote earnestly and at length as to the merits of our coal, as well as to the improvement of the Lehigh. Upon this point, he printed in italics the following sentence: "I say with great confidence, this is the course pointed out, by nature, for the connection between the Susquehanna and the Delaware;" and experience has since verified its truth. He then urged upon the public the improvement in question, on the ground of the comparatively small expense it would require. He was not too sanguine, as the event has proved. On the contrary, he then said: "Our public improvements must 'grow with our growth and strengthen with our strength.' We cannot expect in this young country, having so many points to improve, to equal the old and more populous countries of Europe. I appeal to the judicious men who have witnessed the failure of our grandest plans, if they have not miscarried because they were disproportionate to the necessity and the ability of the country;" and he closed this part of the subject by saying: "*I hope our grandchildren may live to see a complete railway from this place to the Lehigh, and a Canal from thence to Philadelphia.*"

This is an interesting passage. It would be interesting to know just how many of Mr. Miner's readers understood at that day, what a railway was. There was not then a railway in existence,—save the "tram roads" in and about the mines of New Castle—and to those who understood this *how much like the merest vagaries of the imagination* must Mr. Miner's *confident hope* have seemed? And yet it has been more than realized. His grand-children have, indeed,

not only lived to see that *very railway* and canal completed, but he has lived to *see it himself*, finished and in use; and more than this,—he has lived to see, not only that particular railway and canal, but also five *other* railroads and two *other* canals, diverging from this valley to the great coal marts of the country! [And since the above was written, a railroad has been made north, by the side of the canal; two others south to the seaboard cities, and beside the Lehigh Canal; and the construction of two others has also been commenced, leading into the valley from different directions and by new routes.]

But the result of Mr. Miner's investigations, and of his explorations of the Lehigh at that early day, was the hope, that even then coal could be got down the Lehigh river to Philadelphia, in arks from Mauch Chunk; and in December of 1813, he, in company with Messrs. Cist and Robinson, of Wilkes-Barre, leased the mines at Mauch Chunk and made arrangements to try the experiment. Mr. Robinson withdrew early from their company.

Of Mr. Miner, I need hardly speak in this community. For a number of years he represented old Luzerne, (then embracing all of north-eastern Pennsylvania) in the Legislature of the State. Subsequently he represented Lancaster, Chester and Delaware counties in Congress; having for his colleague Jas. Buchanan, now President of the United States. In 1832 he returned to his early home, and is still with us, enjoying happily, at his "Retreat," the evening of a long and well-spent life; the valued friend of all about him; and all are friends of his in return.

Jacob Cist, Esquire, who was associated with him in their Mauch Chunk enterprise, was the son of Charles Cist, who with Robert Morris and others, had formed the "Lehigh Coal Mine Company." He came to this valley in his youth, and commenced the mercantile business in this town; but he was devoted to scientific studies and held a wide correspondence with scientific men. He understood better than

any other gentlemen of his day, the geology of this region. Highly appreciating its coal, and clearly foreseeing its importance, he was ever ready to promote its appreciation abroad; and great reason have his respected descendants in this valley to bless his honored memory, his sound judgment, and far-seeing forecast, verified in his short life, by his wise and ample provision for them in the purchase of coal land.

We speak of these gentlemen thus particularly, because their undertaking was depreciated at the time, and the gentlemen themselves subjected to ridicule, by *those whom their foresight, courage and enterprise greatly benefitted*. But this was no terror to them. Their plans were laid, and hazardous as they appeared to many, they encountered every risk. It is unnecessary to speak of details; it is sufficient to say, that in 1814, the next season after their lease, they started five ark loads of coal from where Mauch Chunk now is—then a perfect wilderness,—but two only reached Philadelphia, so rough and difficult did the navigation of the Lehigh then prove. The principal part of the coal that did reach Philadelphia was purchased at twenty-one dollars per ton by Messrs. White and Hazzard, who then were manufacturing wire at the Falls of the Schuylkill. “But even this price,” says Mr. Hazzard, in his account of it, “did not remunerate them for their losses and expenses, * * * and they were consequently compelled to abandon the prosecution of the business. The result, however, is not to be judged of by the dollars and cents which it involved. Their success—for it was a success in the most important point and object—laid the foundation of a great work and a great trade, and set in motion a ball that has never ceased, and never will cease to roll.

Their coal was tried, and successfully tried, by Messrs. White and Hazzard. Its value was fully appreciated by them; and stimulated those gentlemen to undertake the work, which resulted in the completion of that very railroad and canal, which had been projected by Mr. Miner. He

not only foresaw what might be done; but his inception of the plan was followed by "words fitly spoken;" by publications that had their influence, and by deeds that others shrank from. He not only pointed out, but led the way at the most hazardous juncture, and temporarily, to his own hurt; and that great work now finished proves an enduring monument of the skill, and farseeing sagacity of those who projected and carried it through. It is really such, for we do not yet realize half its importance; for, were it not for the miserable dog-in-the-manger policy of our State government, in not allowing the enlargement of the Delaware Division to correspond with the Lehigh Canal, seagoing sloops and schooners of 150 tons burden could load our coal at that railroad, 245 miles inland from the capes, and within twenty miles of this Valley!*

But why is it that six railroads and two Canals are already constructed, leading from this Valley to the great coal marts of the country? It is the great demand for the article; but upon what is that demand based?

It certainly cannot be wholly attributed to motives of domestic economy; nor yet to the demands of a household luxury, however strong they may be. There is yet a more powerful incentive; and let us see if we can discover what it is. In doing this we must premise that engineers, familiar with the operation of steam engines, can calculate accurately, first the amount of power which a given quantity of coal, burned in an engine furnace, will exert by means of its machinery. This calculation is based upon their experience of this power; and therefore such an engineer, if he is skillful in his business, can tell beforehand, if he knows the quality of his coal, just how much labor a pound of coal will perform; that is, he knows how high the steam, which the pound of coal will generate, will raise a given weight in a

*Since these pages were written a large portion of this canal has been swept away by flood—all that part of it above Mauch Chunk; and two new railroads have been constructed, along its old banks, partially to supply its place.

given time; and he also knows the value of that power, as compared with the labor or the strength of men, when applied to mechanical purposes.

Its application to such purposes may be seen all around us. A few days since, I went into a blacksmith's shop in this town, Mr. Adam Behee's, and there saw a small steam engine, newly erected, and blowing the fires. A small boy was tending it; and the owner told me that its fuel cost him fifty cents a day. His remark was, that "The board of two or three apprentices, before employed to blow those fires, cost him more than the running of that engine; and besides, said he, I will soon have it doing other work for me." Most certainly he will. It will drive a trip hammer that will strike all his heavy blows and ten times faster than he can strike them. It will punch and bore all the holes in his iron; cut out his washers and screw nuts, and make many of his bolts and spikes. It may even help his neighbor; for it can stretch out its long right arm into his carriage and wagon shop; and there saw, and plane, and mortice, and tenon all his timber; and as they now black boots by steam, it may yet, some day, do all his painting! Such is one instance of the application of this power to mechanical purposes; and now let us examine its value.

Professor Rogers, the Geologist, late of this country, has recently accepted a Professor's chair in the University of Glasgow, Scotland. His attention has thus been called to this subject, in reference to the English Coal and Manufactures, and he estimates the mechanical power of 5,000 tons of Bituminous Coal to be equal to the life-labor of more than 1,600 men; that is, he ascertained the fact, that 5,000 tons of coal will exert as much power, while being burned under a steam boiler as 1,600 men can exert during their whole lives; allowing them all to work with usual industry and the average number of years which experience allots to man.

"Then," he says, "assuming, for calculation, that out of

the 65,000,000 of tons annually consumed in Great Britain, ten millions are applied to mechanical power; and we have the fact, that England annually summons to her aid, what is equivalent to an army of 3,300,000 fresh men, pledged to exert their fullest strength, through twenty years of their lives; and therefore her actual, annual expenditure of power, in manufacturing and machinery of every kind, is equal to 66,000,000 of able-bodied laborers." *Sixty-six millions* of willing and energetic—but unclothed, unwhipped, and uncomplaining—slaves, are daily at work for her! and I would commend this great, heart-stirring fact, to the very serious consideration of every Abolitionist; and not only so, but to the thoughtful contemplation of every Republican and Democrat in this broad land North and South, East and West.

This, it has been said a thousand times, has made old England what she is. A little Island, stretching far North into the latitude of Hudson's Bay, she has yet, by the help of this very power and her indomitable will, once nearly subsidized and conquered the world; and raised up an empire in three-quarters of its expanse, on which the sun never ceases to shine.

And how does she appreciate this instrument of her power? Her Bituminous Coal, ranking first with her, as our Anthracite does with us, underlies nearly one-third of her soil. She has enough of it in her Island home, to last her a thousand years,—to say nothing of a larger proportion in Ireland hardly touched—and yet, when her coal land is in market, from two to five thousand dollars per acre are the current prices. Her coal market—the whole area of her island—contains 88,000 square miles, and twenty-one millions of people; and for their supply she has about 8,139 square miles of coal land.

And if we now turn from these facts and figures to our own country, what do we behold? In the first place, our Bituminous Coal is west of the mountains; and on account

of the superior quality of the Anthracite, we will not use the Bituminous as long as the Anthracite lasts. The Anthracite is east of the mountains, and therefore nearest the seaboard and the eastern market. If we look on the map of our country, we see that all of the six New England States; New York, New Jersey and Delaware; together with a third of Pennsylvania, and all of the country south below the mountains, is dependent upon our Anthracite; and will be as long as it lasts. If we then look at the statistics bearing upon the subject, we find the area of country thus described, containing 320,000 square miles; and in 1850, 11,635,000 inhabitants, and only 437 square miles of Anthracite to supply them.

But some may say, that this large market will also be open to the Bituminous Coal; and that Virginia and Western Maryland, is even now supplying it in competition with the Anthracite.

It is true, that some of the Bituminous Coal must be used in the numerous gas works, and for a few other particular purposes; but it bears no competition with the Anthracite. The former is abundant upon the West Branch, within fifteen miles of the city of Williamsport; and yet that town has been fully supplied with Anthracite from this Valley, one hundred miles distant. Two years ago, I found the Anthracite from this Valley was retailed at Chicago and Milwaukee at twelve dollars per ton. From Buffalo it had been carried to those places in returning grain vessels; and had been carried by and around the abundant Bituminous Coal of Ohio and Michigan. It had been carried around, from Carbondale to Rondout on the Hudson, and by the way of Albany to Buffalo; and our North Branch Canal once in operation, it may be supplied at Buffalo certainly as low as six dollars per ton. We can hardly calculate now, how much of this coal will then be sent from that city, nor how much must be sent to Canada; and yet all must admit that it will greatly exceed the quantity of bituminous coal which can possibly be sold upon the seaboard.

It can therefore be said, with entire safety, that the Anthracite of Pennsylvania must supply all of the market heretofore described; and it is a market embracing an area of 320,000 square miles, containing a population of 11,635,000, and fast filling up with many millions in addition.

England, on the contrary, has a coal market embracing an area of only 88,000 square miles, and a population of 21,000,000; but instead of only 437 square miles of coal, she has 8,139 square miles for her supply; and yet she values her coal land, whenever it is for sale, at sums varying between two and ten thousand dollars per acre. It is difficult to retain all these data in the mind at once, so as to comprehend clearly the relative bearing and importance of each. The eye may help the mind to accomplish this;* and the mind itself can grasp the whole subject more effectually perhaps, in the form of a mathematical problem, than in any other way.

A coal mine is always estimated by practical men engaged in the business, to yield one ton, gross weight, for every cubic yard the bed contains, provided the coal is all taken out; and to allow one-third of the coal, to be left in pillars, or walls to sustain the roof. But if we take these data as a basis of calculation, we shall again run into large figures. Let us therefore test the accuracy of every step as we proceed.

It is true that a cubic yard of coal has never been cut out of a mine in one piece and weighed; but there is a more accurate mode of arriving at the same truth. Pure water is always taken by mineralogists as a standard of specific gravity; and when a new mineral is under examination, almost the first inquiry is—What is its specific gravity? We do not ask what is its weight; for if we were told that the specimen in hand weighs two ounces, the statement would be inconclusive and unsatisfactory. What we want to know, is its *comparative* weight; whether it is heavier or lighter than

*See diagram on 49th and 50th pages.

iron, or gold, or silver, or water; and mineralogists always use water as a test because of its unchangeableness. It is never the heavier for being too damp, or the lighter for being too dry; and besides, with its help the specific gravity or comparative weight of mineral is easily tested. We have only to weigh a small specimen of the mineral in the ordinary way, with delicate scales, and note its weight in air, as it is called. Then, the same specimen is suspended from the same scale, perhaps by a hair, and lowered into water and weighed again, and its weight *in water* is again noted. Of course it weighs much less in water than in air; and the difference between the two weights is the important point to be ascertained; for if the number of grains which it weighed out of water, is divided by this difference, the quotient shows its specific gravity, or its weight compared with water. Now, as the weight of a cubic yard of water is exactly known; and also the specific gravity of Anthracite Coal, it is very easy, by a few figures, to ascertain the exact weight of a cubic yard of coal, as it exists in the bed,—and more accurately than it can be done by cutting out a cubic yard from the bed, and weighing it.

Temporary disasters in the business of the country also affect the hopes and confidence of many unduly; and for a short period depress prices below a reasonable standard. Experience of the past should correct this error.

For thirty years the coal business has been rapidly growing; and yet very often it has been greatly depressed for a season, but always rose the next beyond any season before it. In 1820, the Anthracite coal trade was a new business in this country upon the seaboard. Only 365 tons were sold that year in Philadelphia. It was sent down from Mauch Chunk. In 1825, the Pottsville coal was introduced, 1,840 tons being that year sent down the Schuylkill canal.

In 1830, the trade reached the amount, in round numbers, of 175,000 tons. In 1834 there was a reduction in the sales of 111,000 tons, in comparison with the year before; but the

very next year the sales reached 560,000 tons, recovering not only what was lost the preceding year, but surpassing the sales of 1834 by 73,000 tons.

In the years 1838, '39 and '40, there was less coal sold per annum than in 1837, owing to the depressing effects of a low tariff; and yet in 1840 the sales were four times as large as in 1830. Upon the passage of the tariff of 1842, the sales of coal rose in 1843 to 1,100,000 tons, while in 1840 they were only 865,000, and less than in 1837.

In 1850 there were sold 4,800,000 tons; again more than four times as much as was sold the tenth year previous. In 1857, closing the first of January last (1858) there were sold 6,765,000 tons. At the same rate of increase in 1860, about ten millions of coal will be sold; much more than double the quantity sold in 1850. But these figures, it must be borne in mind, are confined to the sales of Anthracite coal, north, south and east of us; and do not include about a million tons sent down the Susquehanna, from all three of the Anthracite coal fields. We may safely estimate, therefore, that not less than 50 per cent. additional will be wanted in market ten years from this time; and much more we believe, from the indications to be mentioned hereafter; and if fifteen millions shall be then demanded the present generation of miners must be industrious and enterprising indeed, if they supply it. In fact another generation equal to theirs must come up to their help; and whoever lives to see that day will see enormous annual incomes realized by coal owners—incomes that now would be thought fabulous. It must be so; in the providence of God it cannot be otherwise.

Great changes in the business itself will occur. The idea of conducting it upon borrowed capital and small means must be abandoned. A ton of coal in market may well be looked upon with interest. It has cost the seller perhaps four dollars, and at least \$3.50 of it is made up of *labor put upon it*; 50 cents only representing its value in the mine. It is labor too that ought and must be paid for long before the

coal is consumed; and this swells to a large amount the capital necessary to be advanced for its production. The working season of its producers commences early in the spring, when the demand for coal is comparatively small. The retailer of the article hesitates to purchase largely. To do so requires a large outlay of capital; and unless he can make an extraordinary bargain he prefers to buy late in the summer or fall even at a higher price when he can buy upon a rising market and is sure of speedy sales.

The producer must therefore have an abundant capital to do business profitably. He must keep his company of laborers in regular employment upon living terms. He must not be compelled to sacrifice the product of his labor to raise money. He should be able to work through the season, and to wait calmly and confidently for the demand and the remuneration that must come as certainly as the frosts and cold winds of winter. Therefore it is that associated capital must be mainly employed. An individual, or an energetic, skillful firm, with abundant capital, can always mine more cheaply than corporations from their closer and more vigilant attention to the details of business. They can save and make money, at times, when a corporation would lose; but very few firms can be got up with sufficient capital for such a purpose.

But while incorporated companies may not work so economically as firms or individuals, as a general rule, they have a compensating advantage in their division of labor. It is only the spare funds of the merchant, manufacturer, lawyer and capitalist, that are thus invested; the spare funds of the many, under the control of the few, that are thus employed; while their owners are at the same time pursuing their regular business. They are content, therefore, and may well be satisfied with comparatively small direct profits upon such spare funds; for that direct profit is not all of the harvest they reap. In the first place the economy and comfort of their own households are greatly promoted by

the cheaper supply of coal. Manufacturing of all kinds is greatly increased by it; and of course the mercantile and every other business is enlarged in consequence. The coal business itself adds a large and profitable item to the business profits of all. Who, indeed, is not profitted by the three or four dollars worth of labor put upon each and every ton of the millions of coal sent to market? Even the Coolies of India, who gather up from the ground the saltpetre worked into the powder that blasts out the coal are benefitted; and so are the ship builders, the ship merchants, and the sailors who bring it home; the manufacturers and merchants who fit out the ships and supply them with rations and cargoes. But it is impossible to trace out all the individuals whose labor or business contributes to place a ton of coal in market. The ramifications of this interest extend wide and broadcast over the whole world. The farmer and the miller upon the upper Missouri; the whaler amid the frozen ocean of the North, who sends his oil to light the lamp of the miner; and the hunter upon the Pampas of South America, who chases down the wild ox and sends his hide to make the miners' brogans; all participate in this growing and commanding interest.

These facts impress their influences deeply upon the judgment and business movements of the country. They account for the expansion of mining operations, and the rapid formation of mining companies. But most of them are new in the business, and have some things to learn. Improvements in the mode of conducting the business must be adopted. A larger class of coal brokers is wanted to sell coal in the cities; and this class is rapidly growing up and becoming an important class in trade. Only a few of the many companies can have landings and yards in the cities, for the sale of their own coal, and it must be the business of the coal broker to search out the larger purchasers of coal; to go between them and the sellers, and for a few cents per ton,

bring them to terms.* The broker must also labor—as the producer cannot—to learn the true condition of the market from time to time. For his own interest the broker must know who are the purchasers of coal, and the nature and extent of their wants; and they then can and will counsel the producers wisely, as to the extent and nature of the demand; for they must know the producers also, and what, and how much each can supply.

There must also grow up within the coal fields a larger class of mining engineers. Their knowledge of the business should be extensive and varied. They should understand the geology of the coal field in all its details, most thoroughly. They must also understand fully and minutely everything in relation to underground workings; and not only so, but they must be ingenious and practical machinists and mechanics; comprehending accurately all the minutiae of machine operations. Such a class is already forming and it should be helped forward. The Polytechnic School of Philadelphia should be transferred to this Valley for six months of the year; for theory without practical knowledge is of little avail. It will not do for mining and iron companies to trust to the advice of half-formed engineers, though the entire labors of such an one is engaged for the year. The interests at stake are too large to be thus hazarded. That business must become a profession of large importance, and the most ingenious, skillful and experienced few must be consulted by the many. They must be men of prudence and integrity; and a liberal reward will follow them. No mining operation should be commenced without the advice of such a man. His local, geological knowledge should counsel the position of the shaft. His mechanical knowledge should plan the machinery. His mining experience should lay out and control the underground workings; while his practical

*The remuneration of coal brokers now ranges from five to forty or fifty cents per ton—the lion's share of the profits. Surely more competition is wanted in that branch of the business.

knowledge of each branch should determine the terms of contract for the whole, so accurately and justly that each party shall "live and let live."

The system of employing mining agents must also, as a general rule, be abandoned. I know among that class, men of skill, and of most worthy energy and faithfulness; but as a class they are poorly paid, and their hopes are limited. Now if this class of men—or many of them—were made contractors; if under the advice of a skillful and upright engineer they were allowed a fair price for mining and delivering coal; the business would be better done and with less money. If they were paid monthly and regularly they would need little or no capital to commence. All their energy and skill would be aroused and applied. They would economize in every practicable way; and the coal would be produced to the owners at less cost than under the present system; and at the same time a small profit upon each ton, would liberally reward and enrich the contractor.

Some such changes in the coal business must occur sooner or later; and the sooner the better. A clock-work regularity and certainty will then more largely pervade in all its branches, and all engaged will have their reward. The hearts of lookers-on and sufferers would not then be wrung by the gross waste of hundreds of thousands. Men will then know what they are about. They will find the coal measures the most important and profitable measures of the country. They will find their coal strata the safest and most profitable banks for investment; and the stocks of coal thus laid up for man, far more safe and profitable than the paper stocks of Wall Street.

The indications of an approaching and unusual increase of the coal business have already been alluded to. The fact has also been mentioned, that when prices have been low, and the business bad for one season, the business has always advanced the more rapidly the next; and there is a reason for this. The low prices of coal extend and stimulate its

use. Whenever it happens to be a drug in market, then it is that resolutions are taken, plans formed, and preparations made to use more of the article in future. And now, beyond all this, there are extraordinary indications of an unprecedented increase. The laboring manufacturers of England, and the Continent have been landing upon our shores in thousands, until their labor is nearly as cheap here as in Europe; and tariff, or no tariff, the steady progress of our manufactories can now hardly be stopped.

The late revulsion of 1857 has taught us a lesson as to imports, that will be profitable for us to remember; and it has proved the existence of abundant capital in our country, that hereafter cannot be hid. It must and will be employed. The manufacture of iron, particularly, must advance in accelerated ratio. Skill and ingenuity have been brought to bear upon it until it has cheapened in its *manufacture* here, perhaps below the necessity of a tariff. If not, the Government will aid them by a better tariff. It always has done so when the crisis required it; for the interests of the working classes demand it of the Government more imperatively than any other. If *manufacturers* are not encouraged to work, many thousands of poor laborers are turned out of employment only to suffer for the folly of politicians. The wealthy can do without a tariff, but the laboring classes cannot. In times of pecuniary trouble the fortunes of the wealthy are magnified in honor, profit and power; and it speaks well for human nature, that they are generally willing to forego these obvious advantages, and to pay in the shape of duties, far more than their own numerical share of the public burdens, for the good of the greatest number; and in this respect the Planter of the South and the rich Banker and money lender of the North are financially upon equal terms, but whether equal in liberal patriotism is for their conduct in such times to attest. Besides this our Government in its recently constructed buildings, has used 40,000,000 of pounds of iron. They are

models of stone, brick and iron edifices perfectly fireproof; and in this last respect are being followed in the cities by private capitalists and builders. Their numerous iron fronts prove this; and it is indeed a folly to construct in a city a valuable building, in such a manner as to render it almost certain some day to be burned. The interest upon the additional cost of iron, to make it perfectly fireproof, is at once paid by increased rents, and by insurance saved, to say nothing of the perfect safety of the immense amount of property within. The day is near at hand when private interests and perhaps city authorities will demand this use of iron.

A few years ago, Clipper built vessels were the master spirits of the great deep. They originated with us, and Englishmen were compelled to buy them of us, or lose their ascendancy upon their boasted ocean home. But the tables are now turned. They are now building iron steam propellers, that are fast driving our wooden walls from the sea; but *Jonathan* can never submit to such a result; he will never yield his share of that strip of common territory to a rival. He will build his own iron steamer, if he cannot buy at a bargain; and he will buy at a bargain until he can build; but whether he builds or buys he must freight his steamer with Anthracite Coal; and many a mariner will yet look out upon the great deep from his castle of iron, and thinking well of the coal beds of Pennsylvania; he will long for their contents, as for bread that must be cast upon many waters. The mercantile and armed marine of the world will yet be moved by coal, and when the thoughts and the attention of business men shall be turned to the source of supply, and like the railroads and canals, be concentrated upon these little fields of Anthracite—mere specks upon the geological chart of the world—who shall estimate their value, or say that they shall last forever.

ANTHRACITE COAL TRADE OF PENNSYLVANIA.

The following table exhibits the Anthracite Coal sent to market from the different regions of Pennsylvania, from the commencement of the trade in 1820 to 1868, inclusive:

Year.	Tons.	Year.	Tons.
1820.....	365	1855.....	6,486,097
1825.....	34,893	1860.....	8,143,938
1830.....	174,734	1865.....	9,488,396
1835.....	560,758	1866.....	12,055,797
1840.....	864,384	1867.....	12,216,215
1845.....	2,013,013	1868.....	13,405,016
1850.....	3,221,136		

But for the long "strikes" of workmen, and the consequent high prices of coal, the production would doubtless have reached fifteen millions of tons in 1869.

The production of coal in England

In 1835 was	26,000,000 tons.
" 1850 "	49,000,000 "
" 1865 "	98,000,000 "
" 1866 " in the United Kingdom.....	101,630,544 "

This only shows the accelerated increase of the coal business in that Kingdom; and that it is *still* increasing more rapidly than heretofore. The *export* of coal from England has now reached nine millions of tons.

NOTE.—The production of Anthracite Coal in Pennsylvania in the year 1919 was 69,259,605 tons; a comparison with the production in 1868, given above, shows the growth of the business in the past fifty-two years. No considerable amount of Anthracite is produced outside of Pennsylvania.

(c. w.)

AREA AND MARKET.

Area of the market (320,000 square miles*) for Pennsylvania Anthracite Coal, shown by these outside lines. Scale same as on next page.

Area of Anthracite Coal in Pennsylvania (437 square miles† shown, on same scale, by the central figure below.

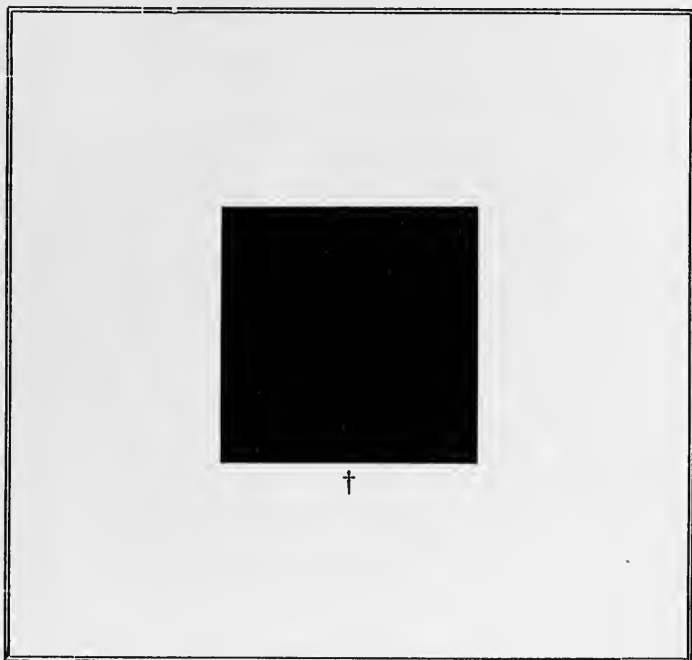


†

*

FOREIGN COALS.

The outside lines* below exhibit the area of market for the English Bituminous Coal, upon the same scale as the preceding figure, and the area of the coal† itself, in the center. Area of English coal fields 8,139 miles, and its market 88,000 square miles.



*

A RELIC OF PIONEER DAYS.

(Tunkhannock Democrat.)

A relic of antiquity, in the shape of a pair of knee buckles, was shown in our office on Tuesday last by Chas. C. Harding, of Eaton township, this county, a son of Jesse Harding, who is now upwards of 80 years of age, and, we are sorry to learn, totally blind. The Hardings are descendants of the pioneer settlers of Wyoming Valley who braved dangers and death that they might carve out homes for themselves and future generations. But to the relic. The buckles were taken from the clothing of Benjamin Harding who, with his brother Stokely, was murdered by the Indians just opposite Falling Springs, a few miles up the river from Pittston, in 1778, a few days before the Wyoming massacre, and whose remains lie buried in a small three cornered cemetery in the heart of the village of West Pittston. These two young men went out in the morning of about July 1, 1778, to hoe corn on a small clearing at the point designated, little suspecting that treacherous savages were lurking near with murderous intent, and not returning at the accustomed time, search was instituted and their bodies found near the scene of their labors.

Benj. and Stokely Harding were uncles of Jesse Harding and the late Elisha Harding, and these relics have been kept as *souvenirs* in the family of Jesse Harding for many years, and no doubt will be preserved by his descendants for generations to come as a memento which will link them with the past and the "days which tried men's souls." The outside, or rim, of the buckles is of pure silver, and the tongues of steel, and they were used in those "early times" for fastening the stockings to the pants—short knee pants being worn in those days.

[Besides the two Hardings killed, there was a younger brother, John, who succeeded in making his escape. Judge Garrick M. Harding, of Wilkes-Barre, is a grandson of John.—ED. RECORD.]

From Johnson's Historical Record, Vol. 1, No. 11.

MEMBERS WHO HAVE DIED SINCE THE ISSUE OF VOLUME XVI.*

CORRESPONDING MEMBER.

Francis Whiting Halsey, November 24, 1919.

BENEFACTOR.

Abram Nesbitt, September 26, 1920.

LIFE MEMBERS.

The Hon. Sterling Ross Catlin, March 23, 1919.

George Chahoon Lewis, August 15, 1919.

Theodore Frelinghuysen Ryman, September 4, 1919.

Andrew Hamilton McClintock, October 7, 1919.

Mrs. Cornelia W. (Scranton) Shoemaker, Dec. 6, 1919.

Maj. Oliver Alphonso Parsons, February 1, 1920.

Alexander Farnham, February 9, 1920.

ANNUAL MEMBERS.

The Hon. Charles Edmund Rice, LL. D., May 16, 1919.

Eugene Worth Mulligan, May 14, 1919.

Charles Paxton Knapp, M. D., May 20, 1919.

William Henry Sturdevant, October 10, 1919.

Mrs. Mary (Stark) Sturdevant, October 11, 1919.

Charles Francis Murray, October 17, 1919.

Arthello Ross Root, November 21, 1919.

Col. William Sharpe, December 20, 1919.

The Hon. Joseph Benjamin Dimmick, A. M., Jan. 13, 1920.

*Through some unaccountable inadvertence the names of Frederick Hillman (a Life Member) and Frank Pardee (an Annual Member) were "starred" in the "Roll of Membership" printed in Vol. XVI of the Society's "Proceedings and Collections." Neither of these gentlemen is dead, but on the contrary is very much alive.

BIOGRAPHICAL NOTES.

DECEASED MEMBERS OF THE SOCIETY.

By OSCAR J. HARVEY, Historiographer.

THE HON. JOSEPH BENJAMIN DIMMICK, A. M.,

who became a member of this Society in 1909, was born in Honesdale, Wayne County, Pennsylvania, October 3, 1858, the second child and son of Samuel Erskine Dimmick and his wife Lucretia M., daughter of Joseph Benjamin of New York.

Samuel Erskine Dimmick (born December 24, 1822), son of Alpheus Dimmick, and grandson of "Deacon" Oliver Dimmick of Mansfield, Connecticut, was a lawyer of prominence in Wayne County from 1846 until his death. He was a delegate to the Republican National Conventions of 1860, 1864 and 1868, and in 1872 was elected a delegate to the Pennsylvania State Constitutional Convention. Early in 1873 he was appointed by Governor Hartranft of Pennsylvania Attorney General of the Commonwealth, and the duties of this important office he performed until his death at Harrisburg, October 11, 1875.

Joseph Benjamin Dimmick prepared for college at Phillips Exeter Academy, Massachusetts, and entered Yale College in the class of 1881. In his Senior year ill health necessitated the discontinuance of his studies; whereupon he made an extended tour of Europe. Subsequently he received from Yale College the degrees of A. B. and A. M. Returning to his home in Honesdale he began the study of law, and in 1882 was admitted to the bar of Wayne County. In 1883 he removed to Scranton, Pennsylvania, and entered upon the practise of law there; but some time later, owing to continued ill health, he again went abroad, where he passed most of his time in Switzerland.

Returning to Scranton in 1893 Mr. Dimmick interested himself in business and public affairs rather than in the practise of his profession. He became President of the Lackawanna Trust and Safe Deposit Company and of the

Scranton Lace Curtain Company; a Director of the Third National Bank, and of the South Side Bank, of Scranton; a Trustee of the Pennsylvania Oral School for the Deaf, of the Scranton Public Library, and of the Scranton Society for the Prevention and Cure of Consumption. He was a member of the University Club, the Yale Club, the National Arts Club and the Pennsylvania Society, all of New York City; and of the Scranton Club and the Country Club of Scranton. In 1906 he was elected Mayor of Scranton, and served a four-year term with great credit.

Mr. Dimmick was married in 1881 to Miss Louisa H. Hunt, of Hartford, Connecticut, and they became the parents of three daughters. Mr. Dimmick died January 13, 1920.

ALEXANDER FARNHAM,

who became a Life Member of this Society in April, 1895, was born in Carbondale, then in Luzerne, now in Lackawanna, County, Pennsylvania, January 19, 1834. He was the second son of Dr. John Perry Farnham (1803-1871), who was the third son of Capt. Samuel Farnham of Oxford, Chenango County, New York, who served in the United States forces at Fort Niagara during the War of 1812. Dr. Farnham was married in July, 1827, to Mary Frances Steere, a native of Providence, Rhode Island (who died at Wilkes-Barré in 1888 at the age of eighty years), and they became the parents of three sons and two daughters.

Alexander Farnham attended school at Madison Academy, Waverly, Pennsylvania, and Wyoming Seminary, Kingston, Pennsylvania. He then became a student in the National Law School at Ballston Spa, New York, where he was graduated in 1852 at the age of eighteen years. Later he read law in the office of (Henry M.) Fuller & (Garrick M.) Harding, Wilkes-Barré, and was admitted to the bar of Luzerne County January 13, 1855. In the beginning of 1857 he formed a partnership with Henry M. Hoyt (later Governor of Pennsylvania), and they practised law in Wilkes-Barré until near the close of 1860.

In 1862 Mr. Farnham served as a Sergeant in Company H (commanded by Capt. Stanley Woodward) of the 3d Regiment of Pennsylvania Emergency Militia; and during the Gettysburg campaign in 1863 he was a Lieutenant in the 30th Regiment, Pennsylvania Militia. Later, in the same

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Alexander Farnham

1834—1920.

campaign, he served as Assistant Adjutant General in a brigade of Pennsylvania militia commanded by Col. William Brisbane of Wilkes-Barré.

In 1870 Mr. Farnham was the candidate of the Republican party of Luzerne County for the office of District Attorney, but was defeated by his Democratic opponent. Three years later, however, he was again the nominee of his party for this office, and was elected. He was a delegate from Luzerne County to the Republican National Conventions of 1880 and 1892. In January, 1892, upon the death of the Hon. Andrew T. McClintock, Mr. Farnham was elected to succeed him as President of the Wilkes-Barré Law and Library Association, and by successive elections he held this office of dignity and honor until his death—a period of twenty-eight years.

Mr. Farnham became a member of Lodge No. 61, Free and Accepted Masons, Wilkes-Barré, February 27, 1855, and for a number of years prior to his death was the oldest living active member of this ancient Lodge.

Mr. Farnham was married July 18, 1865, to Emily Augusta (born September 1, 1844), youngest child of the Rev. John and Penelope (*Mercer*) Dorrance of Wilkes-Barré. The Rev. Dr. Dorrance (1800-1861), who was pastor of the First Presbyterian Church of Wilkes-Barré from 1833 until his death, was a son of Col. Benjamin Dorrance of Kingston, Wyoming Valley, and a grandson of Lieut. Col. George Dorrance who fell at the battle of Wyoming, July 3, 1778.

Mrs. Emily Augusta (*Dorrance*) Farnham died at Wilkes-Barré February 7, 1909, and Alexander Farnham died here February 9, 1920. They were the parents of two sons and one daughter.

Upon the death of Mr. Farnham the following editorial—which well expresses the estimation in which he was held by his brethren of the bar and by the general public of this community—was printed in *The Wilkes-Barré Record*:

"During the years that he was an active practitioner at the local bar, Alexander Farnham did much to give the bar as high a reputation for character and ability as that of any bar in Pennsylvania. The names of many men eminent in the legal profession, and eminent in other activities of State-wide and nation-wide prominence, are recalled in a review of the history of the bar of the days preceding and

following the Civil War. Mr. Farnham was easily one of the leaders in this brilliant roster.

"As a citizen he stood high in the estimation of the people. He was one of the few remaining links between the Wilkes-Barré of village proportions and the Wilkes-Barré of city proportions, and his name stands for what is best in the community's traditions. In the fullness of years he has passed away, universally respected and highly honored."

FRANCIS WHITING HALSEY,

who was elected a Corresponding Member of this Society October 8, 1897, was born at Unadilla, Otsego County, New York, October 15, 1851, the son of Gaius L. Halsey, M. D., and his wife Juliet Carrington. He was educated at Unadilla Academy and at Cornell University, being graduated at the latter institution in 1873 with the degree of B. S. and a prize for an essay in English literature.

Shortly after his graduation he became assistant editor of the *Binghamton Times*, and this position he filled until 1875, when he became assistant day editor of the *New York Tribune*. In 1878, while occupying this position, Mr. Halsey, as a correspondent of his paper, was present in Wilkes-Barré and at Wyoming Monument at the Centennial commemoration of the battle of Wyoming.

In 1880 he left the staff of the *Tribune* to become foreign editor of the *New York Times*, which position he filled until 1891, when he became literary editor of the *Times*, serving as such for five years. Then, as editor of the *New York Times Saturday Review*, he served from the first issue (October 15, 1896) of that interesting and valuable publication until June, 1902, when he became literary adviser of the publishing-house of D. Appleton & Co. In 1905 he went to the staff of the Fund & Wagnalls Co., New York publishers, as literary adviser and one of the editors of *The Literary Digest*. In this work he continued until his death.

On July 4, 1898, Mr. Halsey delivered a splendid historical address at the annual Commemorative Exercises held at Wyoming Monument. He was the author of "The Old New York Frontier," published by Charles Scribner's Sons in 1901; "Our Literary Deluge"; "The Pioneers of Unadilla Village"; "Two Months Abroad". He also compiled "The Literary Digest History of the World War", in ten volumes

(published late in 1919), the work upon which is said to have hastened his death.

Mr. Halsey was also editor of "Great Epochs in American History", "Seeing Europe with Famous Authors", "Balfour, Viviani and Joffre—their Speeches in America"; "American Authors and their Homes"; "Women Authors of Our Day in Their Homes". He was co-editor with William Jennings Bryan of "The World's Famous Orations", ten volumes, 1906 (of which nearly two million volumes have been printed), and co-editor with Henry Cabot Lodge of "The Best of the World's Classics", ten volumes, 1909.

He was a trustee of the New York State Historical Association, the American Scenic and Historic Preservation Society, the Peoples' University Extension Society and the New York City History Club; and a member of the Municipal Art Society, the American Historical Association, the New York State Library Association, the Otsego Society, and the Century, Authors, Aldine, National Arts, Nineteenth Century, Drawing Room and Cornell University Clubs of New York City.

Mr. Halsey was married in New York City December 18, 1883, to Virginia Isabel Forbes. She died January 13, 1899, and he died in the Park Memorial Hospital, New York City, November 24, 1919.

ANDREW HAMILTON McCLINTOCK, A. M.

He was born at Wilkes-Barré December 12, 1852, the third child and only son of the Hon. Andrew Todd and Augusta (*Cist*) McClintock. Andrew Todd McClintock, who was born in Northumberland County, Pennsylvania, February 2, 1810, of Scotch-Irish ancestry, was educated in the public schools of his county and at Kenyon College, Ohio. Upon leaving college he began the study of law in his home town, but later removed to Wilkes-Barré and completed his course of study here—being admitted to the bar of Luzerne County August 8, 1836.

Thenceforth, until only about eleven months before his death, he was one of the foremost and most active practitioners at the Luzerne bar; and upon his retirement from active practise the members of that bar unanimously tendered to him a dinner. For many years, until the day of his death, he was President of the Wilkes-Barré Law and

Library Association—composed of members of the Luzerne bar. In 1870 the honorary degree of LL. D. was conferred upon him by Princeton College.

Mr. McClintock was for thirty-seven years a member of the Board of Managers of the Hollenback Cemetery Association, and for a part of the time was President of the Board. He was one of the originators of the Wilkes-Barré City Hospital and a charter member of the corporation; and was a member of its Board of Directors continuously until his death—serving at one time and another as Vice President and President of the Board.

Early in its life Mr. McClintock became a member of The Wyoming Historical and Geological Society, and served as one of its Vice Presidents in 1860, 1864, 1865, and from 1869 till 1875, and as its President in 1876 and 1889-1891. For many years he was an Elder in the First Presbyterian Church of Wilkes-Barré, and a teacher in its Sunday School. For eleven years prior to his death he was a Director of the Wyoming National Bank of Wilkes-Barré, and prior to that period had served at intervals, between 1842 and 1864, as a Director of the old Wyoming Bank. He was one of the incorporators of the Miners' Savings Bank of Wilkes-Barré, and a member of its Board of Directors (holding the office of Vice President for several years) from May, 1868, till August, 1879.

Augusta Cist, to whom Mr. McClintock was married at Wilkes-Barré May 11, 1841, was a daughter of Jacob Cist (1782-1835) and his wife Sarah Hollenback, who was a daughter of Col. and Judge Matthias Hollenback (1752-1829), whose name and doings are prominently and frequently mentioned on the pages of early Wyoming history. Jacob Cist was a man of extensive knowledge and many accomplishments, who was highly regarded by the people of this community.

Andrew T. and Augusta (*Cist*) McClintock became the parents of three daughters and one son, all of whom grew to maturity. Mr. McClintock died in Wilkes-Barré January 14, 1892, and his widow died September 24, 1895, aged seventy-nine years.

Andrew Hamilton McClintock was graduated at Princeton College in 1872 with the degree of A. B., and three years later he received from his Alma Mater the honorary degree of Master of Arts. He read law with his father, and was

admitted to the bar of Luzerne County January 20, 1876, from which time until his death he continued in the active practise of his profession—succeeding, upon the retirement of his father from active practise, to the extensive and lucrative legal business of the latter.

In 1873 Mr. McClintock became an Annual Member of The Wyoming Historical and Geological Society, and some years later he became a Life Member of the Society. He was always deeply interested in the work and success of the Society, and it was due to him, in connection with Harrison Wright, Sheldon Reynolds, Gen. E. L. Dana and Dr. C. F. Ingham, that the Society—in a moribund condition for a number of years prior to 1878—was saved from death. He was Librarian of the Society in 1883-1885 and Treasurer in 1886-1895.

For a considerable period after 1873 he was an active officer of the Sunday School of the First Presbyterian Church of Wilkes-Barré, and later, for a number of years up to the time of his death, was a member of the Board of Trustees and Treasurer of the "First" Church. He was a member of the original Board of Governors of Westmoreland Club of Wilkes-Barré, incorporated in 1889, and was President of the Club in 1898-1901. He was a member of The Pennsylvania Society in New York, and February 9, 1891, became a member of The Pennsylvania Society of Sons of the Revolution.

In April, 1892, Mr. McClintock became a member of the Executive Committee of The Luzerne County Bible Society (organized at Wilkes-Barré in November, 1819), and in May, 1908, he was elected President of the Society—which office he held until his death. In the "Resolutions of Appreciation", adopted by the Bible Society on the death of Mr. McClintock, it was stated that "Mr. A. T. McClintock, father of the late President, gave nearly forty years of willing and valuable service to the Society. Father and son gave nearly sixty years of their time and means for the important work of distributing the Bible among the neglected peoples of our county."

Mr. McClintock was a member of the original Board of Directors of the Osterhout Free Library of Wilkes-Barré, and served continuously as a member of the Board, and also as its Treasurer, from the date of the organization of the Board until his death—a period of over thirty years.

"The record of his faithful work in the interest of the Library will remain as a most worthy tribute to his memory."

Mr. McClintock was a Director of the Title Guaranty and Trust Company of Scranton, and of the Lehigh and Wilkes-Barré Coal Company. He was a Director of the Miners' Savings Bank of Wilkes-Barré from 1883 till 1886 (serving as Secretary in 1884, 1885 and 1886); and again a member of the Board from 1888 till 1912 (serving as Vice President in 1908-1912). He was a Director of the Miners Bank of Wilkes-Barré from 1912 till 1916, when he was succeeded by his son, Gilbert S. McClintock.

On February 10, 1892, Mr. McClintock was elected a Director of the Wyoming National Bank of Wilkes-Barré to succeed his father. He was elected Vice President of the Board January 13, 1904, and President January 12, 1910. This office he held until his death, at which time the Board of Directors of the bank adopted the following "Resolutions of Condolence":

"At a special meeting of the Board of Directors of the Wyoming National Bank, at 11:30 o'clock Wednesday morning, the following minute was offered and unanimously adopted:

"The Board notes with deep regret the death, Tuesday evening, at his residence in this city, of Andrew H. McClintock, who for more than twenty-seven years was a Director of this bank and for nearly ten years its President.

"Mr. McClintock was a lawyer of unusual attainments and marked ability; a business man of large and varied experience; a citizen of the highest standing in this community, where he was born and where he lived his life. The combination of all these qualities fitted Mr. McClintock in an exceptional way to be the head of a large financial institution.

"To his wise counsel and guiding hand are largely due the success and steady progress of this bank during the more than twenty-seven years of his connection with it. We recognize and sincerely lament the irreparable loss to his family, this institution and the community.

"It is directed that the banking-room be draped in mourning for thirty days."

One of Mr. McClintock's very last acts in life was the making of a substantial donation to the American Jewish

Relief Fund, which was then being raised for the relief and succor of starving Jewish children in foreign lands. During the Succoth services held in the various Jewish synagogues of Wilkes-Barré two days after the death of Mr. McClintock, prayers blessing his memory were offered, and Chief Rabbi Ginsburg delivered in one of the synagogues a eulogy on the exemplary character, public spiritedness and broad-minded charity of Mr. McClintock.

Andrew Hamilton McClintock was married December 1, 1880, to Eleanor Welles, second child and eldest daughter of Charles Frederick and Elizabeth (*LaPorte*) Welles of Athens, Bradford County, Pennsylvania, and they became the parents of two sons—Andrew Todd and Gilbert Stuart McClintock; the former now a physician and the latter an attorney-at-law, and both, since 1911, members of The Wyoming Historical and Geological Society. Mrs. Eleanor (*Welles*) McClintock died December 20, 1911, and Mr. McClintock died October 7, 1919.

EUGENE WORTH MULLIGAN,

who became a member of The Wyoming Historical and Geological Society December 13, 1895, was born at Reading, Pennsylvania, October 28, 1852, the son of James and Caroline (*Van Horne*) Mulligan. After graduating at the Reading High School he filled various clerical positions in his native town until April, 1877, when he came to Wilkes-Barré to accept a clerkship in The Second National Bank, of which his brother, Edward L. Mulligan, was then Paying Teller (in which position he served until his death, April 5, 1892).

In 1882 Eugene W. Mulligan succeeded Edwin A. Spalding as Cashier of The Second National Bank, in which office he served until May 1, 1919, when he was elected a Vice President of the bank. From 1900 until his death he was a Director of the bank. He was also a Director of the Vulcan Iron Works and President of the Board of Directors of Mercy Hospital, Wilkes-Barré. He was an active and earnest member of St. Mary's Roman Catholic Church, and a member of the Board of Trustees of St. Mary's Cemetery, and was a member of Westmoreland Club and Wyoming Valley Country Club of Wilkes-Barré.

Mr. Mulligan was married June 5, 1888, to Alice H. Morris, a daughter of Michael W. and Bridget E. (*Mulligan*) Morris of Pittston, Pennsylvania. Mr. and Mrs.

Mulligan became the parents of three sons and three daughters, who, with their mother, survived Mr. Mulligan, who died at his home in Wilkes-Barré May 14, 1919.

Following his death sympathetic and eulogistic resolutions were adopted by the various organizations and institutions with which he had been connected; but, in addition, the Directors of the Miners Bank of Wilkes-Barré—with which institution Mr. Mulligan had had no official connection—adopted resolutions of respect and admiration, as a tribute from one institution to the executive head of a neighboring institution. This was an unusual and unique incident in the history of Wilkes-Barré banking institutions. The following paragraphs are extracts from these resolutions:

* * * "For forty-two years he lived in this community, and during all that time was actively concerned with the business of banking; and he brought to that business great ability, great industry, and a broad grasp of the important financial problems which the Cashier of a large bank is called upon to solve. His work was well done.

"He had a winning and an affable personality, and a thoroughly Christian character, and was a splendid example of an honorable, upright and broad-guage man, full of kindness and charity and patriotism, typifying progress and illustrating that which can be achieved by a man of ability who creates opportunities, and extracts from them the best that there is in them by putting into them the best that is in himself. * * *

"The officers and Directors of the Miners Bank of Wilkes-Barré, who knew him well, pay this tribute to him and extend to his widow and children their heart-felt sympathy." * * *

CHARLES FRANCIS MURRAY,

who became a member of The Wyoming Historical and Geological Society May 18, 1895, was born at Athens, Bradford County, Pennsylvania, November 5, 1851, the fifth child of Edward Abner and Marianne (*Page*) Murray. Edward Abner Murray (1822-1854) was a son of Abner Murray (1773-1839), eldest son of the Rev. Noah Murray, who was born at Guilford, Connecticut, April 11, 1748; served as a soldier in the 4th and 7th Connecticut Regiments in the Revolutionary War; came to Pennsylvania in 1787 and settled first at Plymouth in Wyoming Valley and then at Tioga Point, in what is now Bradford County; became a

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1831. ABRAM NESBITT. 1920.

Universalist minister, and was also a Justice of the Peace (commissioned November 23, 1788); died at his home in Murraysfield (now Springfield Township, Bradford County), May 11, 1811.

Charles F. Murray was educated at the academy in his native town, and came to Wilkes-Barré in 1869 to become a clerk in the furniture store of Voorhis & Page. In 1876 he succeeded to a partnership in this extensive business, which was conducted on West Market Street under the firm name of Voorhis & Murray until 1913. In this year the business was consolidated with that of S. H. Smith & Sons under the name of the C. F. Murray-Smith Company, and was removed into a new, large and handsome building on South Main Street.

Mr. Murray was a member of Westmoreland Club and Wilkes-Barré Lodge, No. 109, B. P. O. E., and the Tioga Point Historical Society, and was an attendant at, and a contributor to the support of, the First Presbyterian Church of Wilkes-Barré. He was married October 2, 1878, to Ellen Antoinette, daughter of Mahlon Hathaway and Maria Adams (*Axford*) Mandeville of Athens, Georgia. He died at his Summer home in Dallas, Luzerne County, October 17, 1919, being survived by his wife, three daughters and one son.

ABRAM NESBITT.

He was born December 29, 1831, in Plymouth Township, Luzerne County, Pennsylvania, the second child and only son of James and Mary (*Shupp*) Nesbitt. James Nesbitt (1790-1840), who was the son of Abram Nesbitt (1763-1847), was a Captain in the Pennsylvania militia for several years about 1820. At that time and later he was the holder of various township offices in Plymouth; was a member (1829 and later) of the Board of Directors of the Wyoming Bank of Wilkes-Barré; was elected Sheriff of Luzerne County in October, 1832; was elected in October, 1835, as one of the two Representatives from Luzerne County to the Legislature of Pennsylvania; died at his home on East Market Street, Wilkes-Barré, October 9, 1840.

Mrs. Mary (*Shupp*) Nesbitt, the mother of the subject of this sketch, and the wife of Capt. James Nesbitt (to whom she was married November 12, 1815), was born June 2, 1791, eldest child of Col. Philip Shupp and his wife Catharine Everett, then of Northampton County, Pennsylvania,

but later of Plymouth, Luzerne County. Mrs. Mary (*Shupp*) Nesbitt died at the home of her son Abram in Kingston, Luzerne County, December 3, 1864.

The first of the Nesbitt name (or "Nisbitt", as the name was then spelled) to locate in Wyoming Valley was James Nesbitt, great-grandfather of the subject of this sketch. He was born at Newark, Essex County, New Jersey, June 15, 1718, of Scottish ancestry. In 1760, with his wife and four children, he removed from Newark to Fairfield County, Connecticut; but three years later the family moved to Orange County, New York.

Early in 1769 James Nesbitt purchased from The Susquehanna Company a "right" or share in the Company's Wyoming Purchase, and in the ensuing Summer he was one of the 171 "proprietors and settlers on Susquehannah River, and improving on the same," who, at Wilkes-Barré, August 29, 1769, signed a petition to the General Assembly of Connecticut asking to have a County erected, and the necessary officers commissioned and established, at Wyoming.

In the Autumn of 1771 James Nesbitt and his family settled in Plymouth, and thenceforward, until his death there July 2, 1792, he, as well as his son Abram (1763-1847), took a very active part in the affairs of this frontier settlement. The father, James, was a member of the 24th, or Westmoreland, Regiment of the Connecticut militia, and took part in the battle of Wyoming, July 3, 1778. Both James Nesbitt and his son Abram were members of Capt. John Franklin's company of Wyoming militia in the Continental service at the Wyoming post (in Wilkes-Barré) in 1780.

Luzerne County having been erected (in September, 1786), the first election of officers in the new County took place February 1, 1787, and James Nesbitt and five others were chosen Justices of the Peace. They were duly commissioned as such, and also—together with Col. Timothy Pickering—appointed and commissioned, May 11, 1787, by the Supreme Executive Council of Pennsylvania, Justices of the Court of Common Pleas of Luzerne County. James Nesbitt served as Justice of the Peace and as Judge of the Court of Common Pleas until June, 1788, when, just before his seventieth birthday, he resigned both offices, he being then in ill health. Four years later he died.

From 1832 until 1849 Abram Nesbitt, the subject of this

sketch, resided in Wilkes-Barré, and then removed with his mother to Kingston, where he continued to make his home until his death.

He attended school at the Dana Academy in Wilkes-Barré and at Wyoming Seminary, Kingston; but at about the age of nineteen years he quit school and began the study of land surveying under the direction of his brother-in-law, Samuel Hoyt, of Kingston. Before he reached his twenty-first birthday he had become Mr. Hoyt's assistant, and within the next year or two he had started as a surveyor on his own account, and was soon busily and successfully at work.

He devoted all his time to his profession until 1864, when, having considerable other business of importance to look after, he retired from active work as a surveyor. During the next eight or ten years he was, as an expert in his profession, often called upon for advice, opinions, and testimony in litigation over land titles.

In the Summer of 1863 Mr. Nesbitt became one of the organizers of The Second National Bank of Wilkes-Barré, and was elected a member of its first Board of Directors. By successive re-elections he served continuously as a Director until his death. He was elected Vice President of the Board in 1871, and was continued in that office until January, 1877, when he was elected President. This office he held up to the day of his death, and for upwards of forty-three years he gave unstintedly, cheerfully, and enthusiastically his best energies and the greater part of his time to the duties and responsibilities of his office.

In 1864 Mr. Nesbitt became a Director of the Central Poor District of Luzerne County, and, by virtue of re-appointment from time to time by the Judges of the Luzerne County Courts, served continuously in that office for almost fifty years. As recently declared by those with whom he had served on the "Poor Board", "he was fitted by native kindness and by unostentatious personal benevolence for the duties of a public almoner; and, by his close personal attention to those duties, fully justified the continued confidence of the Court. To his administrative ability and his sound, conservative business judgment, must be ascribed in large measure the credit for the creation at Retreat of a property now valued in excess of a million dollars, and having facilities for the humane care of the indigent and the insane not surpassed elsewhere."

From 1883 until his death Mr. Nesbitt was a Trustee of Wyoming Seminary, Kingston, and in 1893, without solicitation, he decided to erect for the Seminary a "Science Hall". The building was completed (at a cost of \$40,000) and formally turned over to the Trustees of the institution and duly dedicated in June, 1894. In addition to "Science Hall" Mr. Nesbitt made other valuable donations to Wyoming Seminary, of which he was a steadfast and valued friend.

In 1912 Mr. Nesbitt founded, by valuable gifts of real estate and money, the "Nesbitt West Side Hospital", located in Dorranceton, about a mile and a quarter from the center of Wilkes-Barré. The first Board of Trustees of the hospital (which included Mr. Nesbitt and his son Abram G.), was elected February 15, 1912.

Mr. Nesbitt was a generous and unostentatious contributor of money to other institutions and to worthy and important projects for the benefit of his fellow men, as for example: Lafayette College, the Methodist Episcopal Church, Mercy Hospital (Wilkes-Barré), the American Red Cross Society; while the financial aid which (as the present writer well knows) he quietly and cheerfully extended to very many of his friends who were in need can only be hinted at here.

In 1908 he became a Life Member of The Wyoming Historical and Geological Society, and in 1910 his name was enrolled in the list of the Society's "Benefactors", in view of his generous donations to its funds. His name headed the list of "Benefactors"—his gifts to the invested funds of the Society, in behalf of himself and members of his family, amounting to about \$20,000, and exceeding those of any other person.

For a number of years Mr. Nesbitt was a Director of the Lehigh Valley Railroad Company, of the Spring Brook Water Supply Company, the Wilkes-Barré Railway Company, and of other important corporations, in all of which he was a large stockholder.

Abram Nesbitt was married at Kingston September 2, 1862, to Sara Myers Goodwin (born September 30, 1832), third and youngest daughter of Abram and Sarah (*Myers*) Goodwin of Kingston. Abraham Goodwin (1750-1822), the first of the name in Wyoming Valley, settled here with his family in 1784. He had eight sons and four daughters,

of whom Abram, the father of Mrs. Sara M. (*Goodwin*) Nesbitt, was the fourth child.

Mr. and Mrs. Nesbitt became the parents of five sons and one daughter, all of whom save the third son and child—Abram Goodwin Nesbitt—are now deceased.* Mrs. Nesbitt died in Kingston, after a brief illness, February 22, 1894, and Mr. Nesbitt died at his Summer home at Lake Catalpa, in Luzerne County, September 26, 1920.

The following paragraphs are extracts from "Resolutions of Condolence" adopted by the Board of Directors of The Second National Bank on September 30, 1920:

* * * "The Directors desire, along with this minute, to place on their records an expression of their love for Mr. Nesbitt as a man, their deep appreciation of the valuable service he has for so many years rendered to this bank, and of their own personal sorrow in his death. * * * His modesty and unpretentious simplicity were never affected by his success. He was always the frank and kindly gentleman, leading the simple life and avoiding ostentation.

"His retiring disposition, and aversion to anything like the limelight of publicity, was one of Mr. Nesbitt's notable traits. He was nevertheless an easily approachable man. He always listened sympathetically to the appeals of those in need of help, and, if he thought help ought to be given, he gave it. He acted on the theory that the best help one can render is to help others to help themselves, and many men, as well as business enterprises, were, during his lifetime, put on the road to success by his timely assistance.

"Mr. Nesbitt had rare discernment in the judging of men, and his confidence once won was permanent. This was an important element of his success as a banker. He was accustomed to place almost more reliance upon the personal character of the borrower than upon the excellence of his collateral. The instances in which his confidence was misplaced were rare. * * * He met faithfully every obligation of citizenship. He was generous and kindly in his relations with his neighbors. He was free from religious prejudices—without narrowness—broad-minded, gentle and forgiving."

*In May, 1919, by due process of law, Mr. Nesbitt formally and legally adopted as his sons the two young sons of his deceased daughter, Mrs. Sara Smythe. See page 318, Vol. XVI, of "Proceedings and Collections of The Wyoming Historical and Geological Society."

THE HON. CHARLES EDMUND RICE, LL. D.,

who became a member of The Wyoming Historical and Geological Society in February, 1891, was born in Fairfield, Herkimer County, New York, September 15, 1846, the son of Thomas Arnold and Vienna (*Carr*) Rice. Thomas Arnold Rice was a son of Moses Rice of Wallingford, Connecticut.

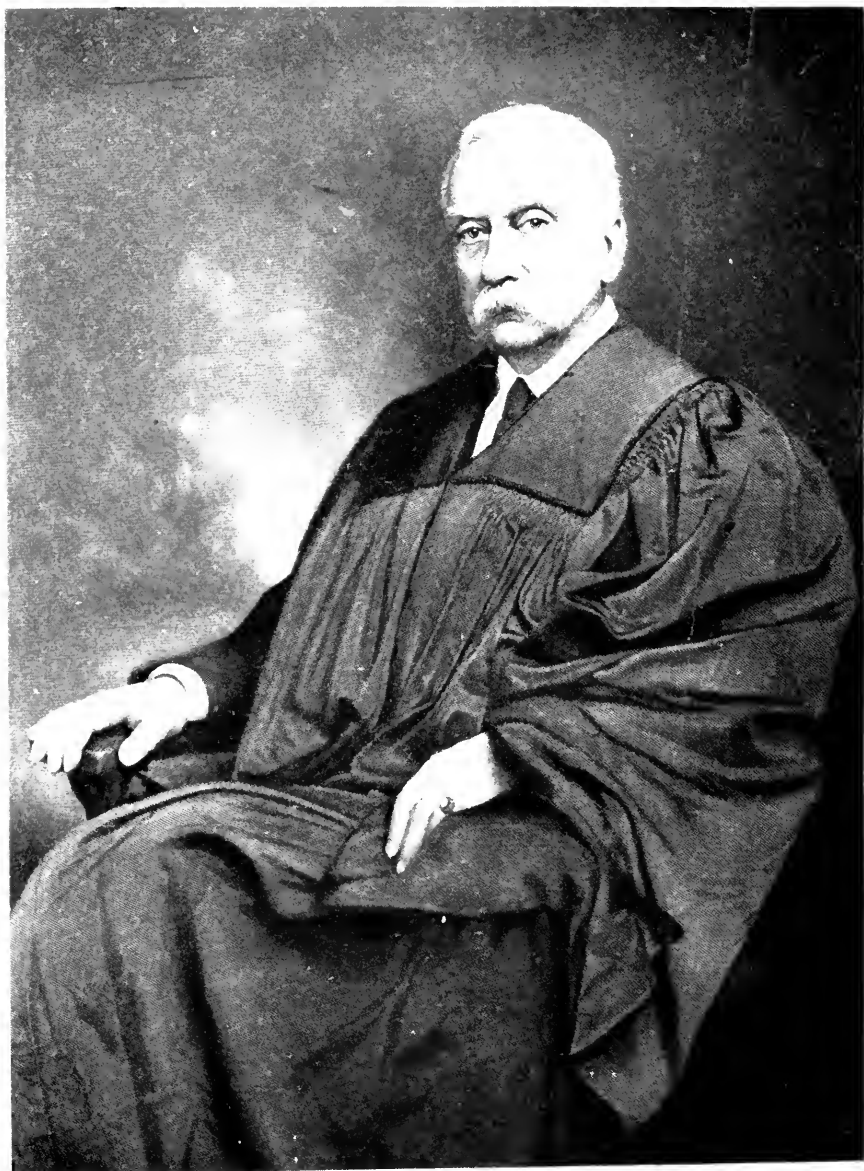
Charles E. Rice was prepared for college at the Fairfield Academy, and, entering Hamilton College, at Clinton, New York, was graduated with the degree of A. B. in 1867. He then taught school for a year at Bloomsburg, Pennsylvania, meanwhile studying law under the direction of John G. Freeze, Esq., of that place. In 1868-1869 he attended the Albany Law School, and, upon his graduation in the Spring of 1869, was admitted to the bar of the Supreme Court of New York.

He then came to Wilkes-Barré and entered as a law student the office of his relative, Lyman Hakes, Esq., then, and for a number of years theretofore, one of the leading trial lawyers in northeastern Pennsylvania. On February 21, 1870, Mr. Rice was admitted to the bar of Luzerne County. About two years later, upon the retirement of Mr. Hakes from the active practise of his profession, Mr. Rice succeeded to a large part of his practise.

In 1874 Mr. Rice was nominated by the Republican party of Luzerne County as its candidate for the office of Judge of the Orphans' Court of this county. His Democratic competitor for the office was the Hon. Daniel L. Rhone, who was elected. In 1876 Mr. Rice was nominated by his party for the office of District Attorney of Luzerne County, and was elected by a large majority.

Three years later he became the Republican candidate for the office of Additional Law Judge of the Courts of Luzerne County—a vacancy in that office having been created by the enforced resignation of Judge William H. Stanton, of Scranton, in February, 1879.

Mr. Rice was duly elected to fill this vacancy in November, 1879. President Judge Harding having resigned his office January 1, 1880, Judge-elect Rice was commissioned President Judge January 5, 1880, and five days later Governor Henry M. Hoyt appointed and commissioned the Hon. Stanley Woodward Additional Law Judge, to fill the vacancy on the Bench created by the resignation of Judge Harding.



846. HON. CHARLES EDMUND RICE, LL. D. 1919.



Judge Rice was elected November 5, 1889, to serve a second term as Judge—receiving a plurality of 1135 votes over his two competitors for the office—and he continued to serve with marked ability and great acceptability as President Judge until June 28, 1895, when he was appointed and commissioned by Gov. Daniel H. Hastings President Judge of the newly-created Superior Court of Pennsylvania. Just about that time Lafayette College conferred upon him the honorary degree of LL. D. (The same degree was conferred upon him by the University of Pennsylvania at a later period).

In November, 1895, Judge Rice was duly elected a Judge of the Superior Court for the full term of ten years from January 6, 1896, and was re-commissioned as President Judge of the Court.

In November, 1905, he was elected to serve a second term, which ended in January, 1916. A strenuous effort was made by his admirers and friends to have him consent to be a candidate for a third term—they declaring that he could have the honor without any opposition—but he declined to be a candidate. He determined to retire to private life at the end of his term of office, "because he conscientiously thought that by reason of physical infirmity he would not be able to render full service during another term." Upon his retirement the members of the bar of Luzerne County tendered him a banquet, which was held in Wilkes-Barré and was a brilliant affair.

Judge Rice's great abilities, his faithful performance of every duty, his unfailing courtesy and his unselfish devotion to the public good assured him the admiration and loving regard of the legal profession and of the people of this Commonwealth. In the appellate court he added to the reputation he had acquired while a Judge of the County Courts.

"In the domain of law and equity, in civil and in criminal jurisprudence, he was equally at home, and as an all round Judge it is safe to say that he had few equals and no superiors."

Judge Rice was a member of the Westmoreland Club, the Wyoming Valley Country Club, and the First Presbyterian Church of Wilkes-Barré, the American Bar Association, and other social and honorary associations. He was married at Wilkes-Barré December 18, 1873, to Maria Mills,

eldest child of the Hon. Henry Mills and Harriet Irwin (*Tharp*) Fuller.

Henry M. Fuller, born at Bethany, Wayne County, Pennsylvania, June 3, 1820, was graduated at Princeton College in 1838, and was admitted to the bar of Luzerne County January 3, 1842. He located in Wilkes-Barré, and in 1848 was elected as one of the Representatives from Luzerne County to the Pennsylvania Legislature.

In 1850 he was elected a Representative to the XXXIIId Congress from the Pennsylvania district comprising Luzerne County. In 1852 he was a candidate for re-election to the same office, but was defeated by the Hon. Hendrick B. Wright.

In 1854 Messrs. Fuller and Wright were again opposing candidates in the same district, and Mr. Fuller was elected Representative to the XXXIVth Congress by a majority of 2,028 votes. When this Congress convened in December, 1855, Henry M. Fuller was put forward as the candidate of the Whig and National Know-Nothing party for the office of Speaker of the House of Representatives—he and Nathaniel P. Banks (afterwards Major General of Volunteers in the Union Army) being the most prominent candidates for the office. After two months of wrangling, and when 133 ballots had been taken, Mr. Banks was declared elected.

When Mr. Fuller retired from Congress in March, 1857, he removed with his family from Wilkes-Barré to Philadelphia, where he died December 26, 1860. His widow and children returned to Wilkes-Barré, where Mrs. Fuller died July 18, 1890, aged sixty-eight years.

Mrs. Maria Mills (*Fuller*) Rice died at Wilkes-Barré December 27, 1909, aged sixty-five years, and Judge Rice died here May 16, 1919, survived by two sons—Charles E. Rice, Jr., and Philip S. Rice.

On May 19, following the death of Judge Rice, at the opening of the Court of Common Pleas of Luzerne County—six Judges and about eighty attorneys being present—the following tribute to the deceased jurist was delivered by the presiding Judge:

"In re—Death of the Hon. Charles Edmund Rice, formerly President Judge of this Court, and later of the Superior Court of Pennsylvania:

"The death of the Hon. Charles E. Rice, which occurred

on the 16th *inst.* at his home in this city, having been announced in this Court, it is fitting, and therefore it is ordered, that an inscription shall be made upon the Court minutes, in perpetual testimony of his eminent public service during a judicial career of thirty-six years. He had been a member of the bar but ten years when he became President Judge of this Court, at the age of thirty-three years. Fifteen years later he became President Judge of the Superior Court.

"Temperament, patience, tolerance, modesty, freedom from prejudice either for or against any class, a deep-seated sympathy with men in their toil—whatever their occupation—absolute integrity; all these, combined with professional learning, brought to him the tribute—freely accorded in his lifetime by parties and advocates—that he was a great Judge, ranking with the greatest who have ever graced either the Common Pleas or the Appellate tribunals of Pennsylvania. In the trial of cases he enlisted and held firmly the confidence of litigants. Never, in all his long service, was a breath of aspersion raised against the impartiality of his judgments.

"His fame and future renown are safely founded on thousands of decisions gathered together in many official and unofficial reports. The memory of his noble judicial example ought to keep alive in this Court an ideal for the admiration of equal justice and right as an inspiration both to Judges and to the members of the bar. As he was a great Judge, so also was he a citizen and a man. From every aspect—in the home, in business and social relations, in all his comings and goings—he was exemplary. By honoring his memory we reflect honor upon Luzerne County and all its citizens.

"It is further ordered that, as a mark of respect to him, this session of court be, and hereby is, adjourned for the week."

THEODORE FRELINGHUYSEN RYMAN,

who became a Life Member of The Wyoming Historical and Geological Society in 1882, was born in Dallas, Luzerne County, Pennsylvania, August 23, 1845, the second child and eldest son of Abram Ryman (1817-1873) and his first wife, Jemima Kunkle.

Abram Ryman, who was the son of Peter Ryman and the grandson of George Ryman, spent his life in Dallas,

where for many years he was successfully engaged in farming, the manufacture and sale of lumber, and in a general mercantile business. Following his death his business—particularly the lumber branch of it—was carried on at Dallas and Wilkes-Barré by his sons, under the name of A. Ryman & Sons.

Theodore F. Ryman was a member of the first Town Council of the borough of Dallas, organized in May, 1879. He was one of the founders in 1879 of the Dallas High School, the first Principal of which was John T. Fuller of Wilkes-Barré. Mr. Ryman was a charter member of George M. Dallas Lodge, No. 531, Free and Accepted Masons, constituted at Dallas March 1, 1875. In 1876 he served as Worshipful Master of the Lodge, and then, for a number of years, as its Treasurer. For a considerable period prior to his death he was the oldest living Past Master of the Lodge.

Mr. Ryman was a Director of the Anthracite Savings Bank of Wilkes-Barré from May, 1890, until May 1, 1912, and then, until his death, a Director of the Miners Bank of Wilkes-Barré. From 1907 until his death he was President of the Hazard Manufacturing Company of Wilkes-Barré. He was a member of Westmoreland Club, Wilkes-Barré, and The Pennsylvania Society of New York. He was married September 16, 1874, to Eliza Malvina Barnes (born May 16, 1845) of Mehoopany, Wyoming County, Pennsylvania, and they became the parents of two sons. Mr. Ryman died at Wilkes-Barré September 4, 1919, and Mrs. Ryman died here October 1, 1919.

WILLIAM HENRY STURDEVANT,

who became a member of The Wyoming Historical and Geological Society in 1858, was born in Braintrim Township, Wyoming County, Pennsylvania, September 4, 1838, eighth and youngest child of John and Sarah (*Fassett*) Sturdevant. John Sturdevant (1796-1879) was the eldest child of Samuel Sturdevant, who was a son of the Rev. Samuel Sturdevant, who was a native of Connecticut; served several terms of enlistment in Connecticut regiments in the Revolutionary War; removed to Black Walnut in Braintrim Township, Luzerne (now Wyoming) County, Pennsylvania, in 1792; became a minister of the Baptist denomination in 1794 and continued as a preacher of that faith until 1824—

being one of the pioneers of the Baptist ministry in north-eastern Pennsylvania. He died at Black Walnut April 9, 1825, aged eighty-six years.

John Sturdevant (known during many years of his life as "Major" Sturdevant) was for some years a general merchant in his native place, and was also engaged in the milling and lumber businesses. Later he became a land surveyor. In 1838 he was elected to the Pennsylvania Legislature as one of the two Representatives from Luzerne County; and in 1855 was elected as a Representative from Wyoming County—which had been erected out of Luzerne County in 1842. About 1857 Major Sturdevant removed with his family to Wilkes-Barré, where for many years he engaged in land surveying and, in partnership with one of his sons, in the china and crockery business. He was highly regarded and greatly respected by his fellow citizens. He died at Wilkes-Barré in 1879.

William H. Sturdevant came to Wilkes-Barré with the other members of his father's family, and spent the remainder of his life here. Until within a few years of his death he was actively and extensively engaged in his profession of civil engineer. For some time he was County Surveyor of Luzerne County, and for about fourteen years City Engineer of Wilkes-Barré. He was Chief Engineer of the old Wilkes-Barré Water Company, and also a Director of the company. He also served for a time as Chief Engineer for the Wilkes-Barré and Wyoming Valley Traction Company.

Mr. Sturdevant became a member of Lodge No. 61, F. and A. M., May 8, 1865, and a member of the Pennsylvania Society of Sons of the Revolution March 9, 1891. He was married at Wilkes-Barré October 8, 1874, to Mary Letitia Thomas, daughter of Jesse Thomas and his wife Ellen Elizabeth Miner, daughter of the Hon. Charles Miner—editor, publisher, Representative in Congress, and historian of early Wyoming. Mrs. Sturdevant died at Wilkes-Barré October 18, 1918, and Mr. Sturdevant died here October 10, 1919, being survived by one daughter and one son.

OFFICERS FOR THE YEAR 1920.

PRESIDENT.

IRVING ARIEL STEARNS.

VICE PRESIDENTS.

HON. JOHN BUTLER WOODWARD.
DR. LEWIS HARLOW TAYLOR.
WILLIAM HILLARD CONYNGHAM.
COL. DORRANCE REYNOLDS.

CORRESPONDING SECRETARY AND LIBRARIAN.

CHRISTOPHER WREN.

ASSISTANT LIBRARIAN.

MISS ERNESTINE MARTIN KAEHLIN.

RECORDING SECRETARY.

SAMUEL COGSWELL CHASE.

TREASURER.

CHARLES WILBER LAYCOCK.

TRUSTEES.

ANDREW HUNLOCK. HENRY HERBERT ASHLEY.
ISAAC M. THOMAS. RICHARD SHARPE.
HENRY HUNTER WELLES, JR.

CURATORS.

ARCHAEOLOGY—CHRISTOPHER WREN.
NUMISMATICS—
MINERALOGY—WILLIAM REYNOLDS RICKETTS.
PALAEOONTOLOGY—
PALAEOBOTANY—

HISTORIOGRAPHER.

OSCAR JEWELL HARVEY

PUBLISHING COMMITTEE.

CHRISTOPHER WREN.
GEORGE FREDERICK CODDINGTON.

STANDING COMMITTEES.

FINANCE.

ANDREW HUNLOCK.
RICHARD SHARPE.
HENRY HERBERT ASHLEY.
ISAAC MINER THOMAS.

CABINET.

IRVING ARIEL STEARNS.
WILLIAM REYNOLDS RICKETTS.
CHRISTOPHER WREN.

ANNUAL COMMITTEES.

ESSAYS AND PAPERS.

ROBERT VAN ALSTINE NORRIS, Chairman.
ARCHIE DEWITT SMITH.
CHRISTOPHER WREN.

INCREASE OF MEMBERSHIP.

CHRISTOPHER WREN, Plymouth, Chairman.
ROBERT PACKER BRODHEAD, Kingston.
Dr. ARCHIE CARVER SHOEMAKER, Pittston.
WALTER CORAY SUTHERLAND, Pittston.
Miss EMMA J. JENKINS, Wyoming.
Mrs. AMELIA MARIA KENNEDY, Scranton.
ARTHUR D. DEAN, Scranton.
WILLIAM ALONZO WILCOX, Scranton.
GEORGE BAKER HILLMAN.
Miss MARTHA ADELIA MAFFET.
JAMES F. LABAGH, Wilkes-Barre.
Miss SARAH WOOD CRARY, Shickshinny.

HISTORIAN.

OSCAR JEWELL HARVEY.

TO ASSIST HISTORIAN.

CHARLES WELLES BIXBY.

ENTERTAINMENT.

Gen. CHARLES BOWMAN DOUGHERTY.
GILBERT STEWART McCLINTOCK.
PAUL BEDFORD.

ROLL OF MEMBERSHIP.

HONORARY.

Rev. William M. Beauchamp, S. T. D.
 Joseph Barrell, Ph. D.
 Reuben Nelson Davis.
 Hon. Samuel Abbott Green, LL. D.
 Rev. Samuel Hart, D. D.
 James Furman Kemp, Ph. D.
 Rt. Rev. J. M. Levering, D. D.
 Thomas Lynch Montgomery, Litt. D.
 Frederick B. Peck, Ph. D.

Hon. Henry Blackman Plumb.
 Joseph George Rosengarten, LL. D.
 William Berryman Scott, Ph. D.
 John L. Stewart, Ph. D.
 Lion Gardiner Tyler, LL. D.
 Rev. Ethelbert Dudley Warfield, LL. D.
 David White, Washington, D. C.
 Edward H. Williams, Jr., F. G. S. A.

CORRESPONDING.

Felix Ansart.
 Edwin Swift Balch. 1901.
 Thomas Willing Balch. 1901.
 John Seymour Ball.
 Edmund Mills Barton.
 D. L. Belden.
 Alfred Franklin Berlin.
 Maynard Bixby.
 T. V. Braidwood.
 Philip Alexander Bruce, LL. B.
 Pierce Butler.
 D. M. Collins.
 Stewart Culin.
 Samuel L. Cutter.
 John H. Dager.
 N. H. Darton, F. G. S. A.
 Harry Cassel Davis, A. M., Ph. D.
 Rev. Samuel Bayard Dod, A. M.
 Elnathan F. Duren.
 George M. Elwood.
 Prof. William Frear, Ph. D.
 Hon. John Gosse Freeze.
 Frank Butler Gay.
 William Griffith.
 P. C. Gritman.
 Stephen Harding.
 A. L. Hartwell.

Granville Henry.
 Thomas Cramer Hopkins, Ph. D.
 Ray Greene Huling, Sc. D.
 Hon. William Hunting Jessup.
 Charles Johnson.
 John Wolfe Jordan, LL. D.
 Rev. Charles H. Kidder.
 Dr. J. R. Loomis.
 Hon. John Maxwell.
 Edward Miller.
 Millard P. Murray.
 Arthur C. Parker.
 John Peters.
 James H. Phinney.
 William Poillon.
 S. R. Reading.
 J. C. Rhodes.
 Lieut. Henry M. M. Richards.
 Joseph Trimble Rothrock, M. D.
 William M. Samson.
 Mrs. Gertrude (Griffith) Sanderson.
 W. H. Starr.
 Thomas Sweet, M. D.
 Samuel French Wadhams.
 Abraham Waltham.
 Mrs. Margaret (Lacoe) White.
 William Alonzo Wilcox.

*Deceased.

† LIFE MEMBERS.

By payment of \$100.

FOUNDERS.

The figures at the end of the names indicate the year in which membership began.

- *James Plater Dennis, 1858.
- *Col. John Butler Conyngham, 1858.
- *Hon. Henry Martyn Hoyt, 1858.
- *Hon. Stanley Woodward, 1858.

‡ BENEFACTORS.

- | | |
|---|---------------------------------------|
| Edwin Swift Balch, 1918. | *Sidney Roby Miner, 1896. |
| *Joseph Swift Balch, 1918. | Abram Nesbitt, 1882. |
| *Col. Zebulon Butler. | Abram Goodwin Nesbitt, 1897. |
| *George Slocum Bennett, 1892. | Abram Smythe Nesbitt, 1911. |
| *Eckley Brinton Cox, 2nd, 1907. | *James Nesbitt, 1917. |
| Mrs. Sophia E. (Norris) Cox, 1903. | *Sarah Goodwin Nesbitt, 1917. |
| Mrs. Sophie G. (Fisher) Cox, 1903. | Samuel Smythe Nesbitt, 1911. |
| *Rev. Horace Edwin Hayden, 1881. | *Isaac Smith Osterhout, 1858. |
| *Col. Matthias Hollenback. | *Mrs. Elizabeth (Laning) Smith, 1911. |
| Miss Amelia Baird Hollenback, 1895. | *Sheldon Reynolds, 1874. |
| John Welles Hollenback, 1868. | *Gen. William Sterling Ross, 1858. |
| Andrew Hunlock, 1870. | *Mrs. Sara (Nesbitt) Smythe, 1911. |
| Fred Morgan Kirby, 1895. | Irving Ariel Stearns, 1870. |
| *Rev. Jacob Johnson. | Mrs. Emily (Fuller) Bedford, 1910. |
| *Frederick Charles Johnson, M. D. 1872. | Miss Anna Hollenback Taylor, 1916. |
| *Ralph D. Lacoe, 1882. | Lewis Harlow Taylor, M. D. 1897. |
| *Augustus C. Laning, 1858. | *Edward Welles, 1868. |
| *Hon. Charles Abbott Miner, 1864. | *Hon. Stanley Woodward, 1858. |
| *Hon. Charles Miner, 1858. | *Harrison Wright, Ph. D. 1872. |

LIFE MEMBERS.

- | | |
|--|---|
| *Miss Lucy W. Abbott, 1897. | *Samuel LeRoi Brown, 1882. |
| *Lucius Ashley, 1908. | Mrs. Emily (Ryman) Burlingham, 1902. |
| *Mrs. Caroline (Beadle) Ashley, 1908. | Mrs. Anna Bennett (Phelps) Burrows, 1895. |
| Henry Herbert Ashley, 1895. | *Phineas M. Carhart, 1895. |
| Thomas Henry Atherton, 1881. | George H. Catlin, 1907. |
| *Miss Emily Isabella Alexander, 1895. | *Hon. Sterling Ross Catlin, 1898. |
| *Gustav Adolph Bauer, 1897. | Mrs. Bertha (Robinson) Conyngham, 1897. |
| Mrs. Emily (Hollenback Taylor), 1902. | John Nesbitt Conyngham, 1892. |
| George Reynolds Bedford, 1866. | William Hillard Conyngham, 1892. |
| *Mrs. Priscilla (Lee) Bennett, 1882. | *William Lord Conyngham, 1884. |
| *Miss Martha Bennet, 1895. | *Mrs. Mae (Turner) Conyngham, 1895. |
| Charles Welles Bixby, 1895. | *Alexander Brinton Cox, 1896. |
| *Joseph Habersham Bradley, Jr. 1908. | *Hon. Eckley Brinton Cox, 1860. |
| *William Brisbane, M. D. 1858. | *John M. Crane, 1911. |
| Mrs. Fannie (Loveland) Brodhead, 1916. | *Nathan Beach Crary, 1911. |
| Robert Packer Brodhead, 1895. | *Hon. Edmund Lovell Dana, 1858. |

*Deceased.

- *Edward Payson Darling. 1870.
 Thomas Darling. 1895.
 *Mrs. Alice (McClintock) Darling. 1881.
 Mrs. Dorothy Ellen (Dickson) Darte. 1895.
 *Andrew Fine Derr. 1881.
 Andrew Fine Derr, Jr. 1908.
 Miss Elizabeth Lowrie Derr. 1908.
 Miss Katherine Dickson Derr. 1908.
 *Mrs. Mary D. (Fell) Derr. 1903.
 Mrs. Harriet (Lowrie) Derr. 1896.
 *Henry Haupt Derr. 1870.
 Thompson Derr, 2nd. 1908.
 *Allan Hamilton Dickson. 1895.
 Mrs. Kate (Pettebone) Dickson. 1895.
 *Rev. John Dorrance, D. D. 1858.
 *Hon. Charles Dorrance. 1858.
 *Alexander Farnham. 1895.
 *Hon. Jesse Fell. 1908.
 *Liddon Flick. 1904.
 *Hon. Charles Dorrance Foster. 1895.
 Mrs. Mary Jane (Hoagland) Foster. 1896.
 *Lt. Joseph Wright Graeme, U. S. N. 1902.
 Mrs. Sarah H. (Wright) Guthrie. 1896.
 *Col. Elisha Atherton Hancock. 1902.
 *Hon. Garrick Mallery Harding. 1895.
 *Henry Harrison Harvey. 1872.
 *Jameson Harvey. 1908.
 Mrs. Jennie (DeWitt) Harvey. 1895.
 *James C. Haydon. 1901.
 Frederick Hillman. 1902.
 George Baker Hillman. 1896.
 *Henry Baker Hillman. 1902.
 Miss Anna Welles Hollenback. 1905.
 *Miss Julietta Genevieve Hollenback. 1906.
 *George Matson Hollenback. 1858.
 *Miss Elizabeth Waller Horton. 1897.
 *Miss Augusta Hoyt. 1900.
 *John Dorrance Hoyt. 1917.
 *Martha Goodwin Hoyt. 1917.
 *Abraham Goodwin Hoyt. 1917.
 *Edward Everett Hoyt. 1917.
 *Francis William Hunt. 1908.
 *Charles Farmer Ingham, M. D. 1858.
 Frederick Green Johnson. 1907.
 *Edwin Horn Jones. 1895.
 *Henry L. Jones, S. T. D. 1881.
 *Richard Jones. 1908.
 *George Brubaker Kulp.
 *William Arthur Lathrop. 1895.
 *Woodward Leavenworth, Jr. 1906.
 *Woodward Leavenworth. 1882.
 *George Cahoon Lewis. 1893.
 *Edward Sterling Loop. 1869.
 Charles Noyes Loveland. 1898.
 Miss Elizabeth Shepard Loveland. 1900.
 *George Loveland. 1870.
 *William Loveland. 1896.
 *William Ross Maffet. 1900.
 *Col. John Miner Carey Marble. 1905.
 Alvin Markle. 1905.
 *Andrew Hamilton McClintock. 1873.
 *Mrs. Augusta (Cist) McClintock. 1881.
 Col. Asher Miner. 1895.
 Mrs. Eliza Ross (Atherton) Miner. 1881.
 Charles Howard Miner, M. D. 1896.
 *Charles Morgan. 1858.
 *Lawrence Myers. 1895.
 *Frederick Nesbitt. 1901.
 *George Francis Nesbitt. 1900.
 Miss Fredericka Nesbitt. 1906.
 *Ralph Nesbitt. 1906.
 *Mrs. Sara Myers (Goodwin) Nesbitt. 1906.
 Daniel Edwards Newell. 1903.
 Mrs. Esther (Shoemaker) Norris. 1896.
 *Mrs. Anna (Miner) Oliver. 1916.
 *Lewis Compton Paine. 1881.
 *Hon. Henry W. Palmer. 1902.
 *Rev. Nathan Grier Parke, D. D. 1898.
 *Charles Parrish. 1858.
 *Mrs. Mary (Conyngham) Parrish. 1881.
 Mrs. Ella (Reets) Parrish. 1896.
 *Calvin Parsons. 1858.
 *Maj. Oliver Alphonso Parsons. 1868.
 Joseph Emmet Patterson. 1896.
 William Grant Payne. 1908.
 William Theodore Payne. 1902.
 *Payne Pettebone. 1858.
 *Francis Alexander Phelps. 1895.
 *John Case Phelps. 1859.
 Mrs. Martha (Bennett) Phelps. 1895.
 Rollo Green Plumb. 1913.
 William John Raeder. 1902.
 *John Reichard, Jr. 1873.
 *Benjamin Reynolds. 1870.
 *Mrs. Annie B. (Dorrance) Reynolds. 1895.
 Col. Dorrance Reynolds, M.A., LL.B. 1896.
 Miss Edith Lindsley Reynolds. 1902.
 *Col. George Murray Reynolds. 1883.
 Schuyler Lee Reynolds. 1899.
 *William Champion Reynolds. 1858.
 *Charles Francis Richardson, Litt. D. 1914.
 Mrs. Elizabeth Miner Richardson. 1916.
 Robert Bruce Ricketts, 2nd. 1908.
 William Reynolds Ricketts. 1894.

*Deceased.

- *Ferdinand Vandevere Rockafellow. 1884.
 Mrs. Charlotte M. (Rose) Ryman. 1900.
 *William Penn Ryman. 1881.
 Miss Rosalie Ryman. 1902.
 *Theodore F. Ryman. 1902.
 *Joseph John Schooley. 1900.
 Miss Caroline Johnston Sharpe. 1908.
 Miss Elizabeth Montgomery Sharpe. 1896.
 Miss Mary A. Sharpe. 1897.
 *Richard Sharpe, Sr. 1883.
 Richard Sharpe. 1908.
 Richard Sharpe, Jr. 1881.
 *Mrs. Sally (Patterson) Sharpe. 1897.
 Miss Sallie Sharpe. 1896.
 *Arthur Yeager Shepherd. 1910.
 *Charles Jones Shoemaker. 1895.
 *George Shoemaker. 1900.
 *Mrs. C. W. (Scranton) Shoemaker. 1900.
 Mrs. Esther (Stearns) Shoemaker. 1899.
 Irving Stearns Shoemaker. 1914.
 Miss Jane Augusta Shoemaker. 1896.
 *Hon. Lazarus Denison Shoemaker. 1858.
 *Levi Ives Shoemaker, M. D. 1892.
 Albert D. Shonk. 1916.
 J. Bennett Smith. 1918.
 Miss Katharine Conyngham Snyder. 1908.
 Miss Eleanor Parrish Snyder. 1908.
 *Mrs. Clorinda (Shoemaker) Stearns. 1895.
 *Capt. L. Dennison Stearns. 1897.
 *Addison Alexander Sterling. 1882.
 *Forrest Garrison Stevens. 1908.
 Mrs. Sarah Covell (Maffet) Stevens. 1906.
 Mrs. Rosa (Sharpe) Stevens. 1902.
 Walter S. Stewart, M. D. 1895.
 Thomas Kirbride Sturdevant. 1898.
 *James Sutton. 1908.
 *John Henry Swoyer. 1884.
 *Mrs. Ellen E. (Miner) Thomas. 1895.
 *Percy Rutter Thomas. 1899.
 Miss Sallie Brinton Thomas. 1892.
 *Ephriam Troxell. 1907.
 Miss Rosa Troxell. 1897.
 Mrs. Martha (Sharpe) Tucker. 1900.
 John Augustus Turner. 1895.
 *Hon. Samuel Gonsalus Turner. 1868.
 Louis Hollenback Twyefforth. 1909.
 *William Tompkins.
 *Stephen Buckingham Vaughn. 1882.
 *Mrs. Esther T. (French) Wadhams. 1881.
 *Calvin Wadhams. 1858.
 *Mrs. Frances Lynde Wadhams. 1900.
 Raymond Lynde Wadhams, M. D. 1896.
 *Rev. David Jewett Waller. 1908.
 Edward Welles, Jr. 1899.
 *Rev. Henry Hunter Welles, D. D. 1895.
 Anthony Lawrence Williams. 1907.
 George Woodward, M. D. 1899.
 Christopher Wren. 1902.
 *Mrs. Emily L. (Cist) Wright. 1881.
 Harrison Wright, 3d. 1897.
 George Riddle Wright. 1882.
 *Hon. Jacob Ridgway Wright. 1895.
 John B. Yeager. 1910.
 Mrs. Margaret M. (Myers) Yeager. 1897.
 *Elias Baylits Yordy. 1882.

*Deceased.

EXTRACT FROM BY-LAWS.

†The payment of one hundred dollars at one time by a member not in arrears, shall constitute him a life member, with an exemption from all future payments.

"All moneys received on account of life membership, shall be securely invested by the Trustees in the name of the Society, and shall form a fund to be called "The Life Membership Fund", the interest only of which shall be available for the uses of the Society.

‡"Any person contributing to the Society at one time a fund of one thousand dollars or more shall be placed on the list of Life Members with the title of 'Benefactor'. The Life Membership list shall be published annually."

The life member is entitled to all the publications and privileges of the Society, free, and by the payment of his fee establishes a permanent memorial to his name which never expires, but always bears interest for the benefit of the Society. His is therefore always a *living* membership.

ANNUAL MEMBERS.

Thomas Henry Atherton, Jr. 1917.
 Mrs. Mary S. (Butler) Ayres. 1899.
 Shepherd Ayres. 1914.
 Mrs. Eleanor M. Bamford. 1918.
 Theodore Strong Barber. 1912.
 Jesse Beadle. 1907.
 André Alden Beaumont. 1907.
 Paul Bedford. 1906.
 Reuben Nelson Bennett. 1906.
 Stephen Beers Bennett. 1899.
 Ziba Platt Bennett. 1906.
 Thomas W. Brown. 1910.
 Miss Mary Gillette Brundage. 1912.
 Elmer Ellsworth Buckman. 1896.
 Ernest Ustick Buckman, M. D. 1895.
 J. Arthur Bullard, M. D. 1892.
 Douglass Bunting. 1908.
 Edmund Nelson Carpenter. 1892.
 Walter Samuel Carpenter. 1886.
 Benjamin Harold Carpenter. 1900.
 Henry J. Carr. 1914.
 William Henry Castle. 1912.
 Frederick M. Chase. 1896.
 Samuel Cogswell Chase. 1914.
 Miss Martha L. Crary. 1907.
 Miss Sara Wood Crary. 1907.
 George Frederick Coddington. 1901.
 Herbert Conyngham. 1896.
 James Cool. 1915.
 Franck George Dart. 1907.
 A. Livingston Davenport. 1905.
 Arthur D. Dean. 1897.
 Harold Davenport Deemer. 1902.
 Oscar Herbert Dille. 1912.
 *J. Benjamin Dimmick. 1909.
 Gen. Charles Bowman Dougherty. 1895.
 Mrs. Ella (Bicking) Emory. 1895.
 Barnet Miller Espy. 1896.
 Rev. James McCulloch Farr, D. D. 1913.
 Miss Harriet Storer Fisk. 1918.
 R. J. Flick. 1905.
 Joseph E. Fleitz. 1913.
 Ferdinand S. Fowler. 1914.
 Harry Livingston French. 1907.

Hon. Henry Amzi Fuller. 1895.
 Edmund Jayne Gates. 1915.
 Charles H. Gillam. 1906.
 Charles K. Gloman. 1914.
 Edward Gunster. 1908.
 Mrs. Mary (Richardson) Hand. 1896.
 William G. Harding. 1912.
 James P. Harris. 1919.
 Miss Caroline Ives Harrower. 1914.
 Charles D. S. Harrower. 1910.
 Miss Mary Harvey. 1896.
 Oscar Jewell Harvey. 1914.
 Robert R. Harvey. 1915.
 Samuel H. Hicks. 1918.
 Lord Butler Hillard. 1896.
 Oliver Charles Hillard. 1907.
 Tuthill Reynolds Hillard. 1914.
 S. Alexander Hodge. 1897.
 Lyman H. Howe. 1914.
 John T. Howell, M. D. 1895.
 Charles Frederick Huber. 1908.
 John M. Humphreys. 1902.
 Miss Anna Mercer Hunt. 1896.
 Charles Parrish Hunt. 1892.
 Lea Hunt. 1902.
 Benjamin W. Jenkins. 1914.
 Miss Emma J. Jenkins. 1903.
 John E. Jenkins. 1914.
 George D. Johnson. 1914.
 Mrs. Georgia P. Johnson. 1910.
 Harry E. Jordan. 1914.
 Miss Ernestine Martin Kaehlin. 1909.
 Mrs. Amelia Maria (Carter) Kennedy. 1907.
 *Charles P. Knapp, M. D. 1900.
 James F. Labagh. 1904.
 Elmer Henry Lawall. 1892.
 Charles Wilber Laycock. 1905.
 George Washington Leach, Jr. 1901.
 Edwin T. Long. 1900.
 Charles W. Lee. 1895.
 Henry Lees. 1914.
 Mrs. Dora (Rosenbaum) Long. 1899.
 Miss Martha Adelia Maffet. 1903.
 John Markle. 1905.

*Deceased.

Harry Clark Mason. 1912.
 Granville Thomas Matlack, M. D. 1900.
 Andrew Todd McClintock. 1911.
 Gilbert Stewart McClintock. 1911.
 George Roberts McLean. 1908.
 William Swan McLean, Sr. 1870.
 William Swan McLean, Jr. 1914.
 Mrs. Maud (Van Horn) Meixell. 1919.
 Elmer L. Myers, M. D. 1919.
 Mrs. Helen (Reynolds) Miller. 1896.
 Benjamin Franklin Morgan. 1897.
 Charles Evans Morgan. 1896.
 *Eugene Worth Mulligan. 1895.
 *Charles Francis Murray. 1895.
 George Nicholson. 1912.
 Samuel T. Nicholson. 1914.
 Robert Van Alstine Norris. 1896.
 Major Harry W. Pierce. 1910.
 Israel Platt Pardee. 1904.
 Frank Pardee. 1904.
 Frank Ellsworth Parkhurst. 1904.
 William Henry Peck. 1901.
 Miss Myra Poland. 1904.
 Robert A. Quinn. 1908.
 John W. Raeder. 1897.
 John Butler Reynolds. 1895.
 Mrs. Mabel (Doudge) Reynolds. 1910.
 *Hon. Charles Edmund Rice. 1895.
 Phillip F. Rice. 1914.
 William Henry Richmond. 1910.
 Robert Patterson Robinson. 1896.
 J. Irving Roe, M. D. 1904.
 *Arthello Ross Root. 1897.
 *Leslie Sturdevant Ryman. 1894.
 Christian H. Scharer. 1882.
 Harry B. Schooley. 1901.
 *William Sharp. 1915.
 Harry Clayton Shepherd. 1897.

William Carver Shepherd. 1895.
 Archie Carver Shoemaker, M. D. 1896.
 Harold Mercer Shoemaker. 1907.
 William H. Shonk. 1918.
 Edwin Shortz, Jr. 1914.
 Archie DeWitt Smith. 1896.
 Ernest Gray Smith. 1914.
 Miss Cornelia M. Stark. 1910.
 S. Judson Stark. 1920.
 Walter Carlton Sterling. 1912.
 Rev. Winfield Scott Stites. 1914.
 Dr. Louise M. Stoeckel. 1914.
 Frank Sturdevant Stone. 1914.
 *Capt. Cyrus Straw. 1875.
 Hon. Seligman J. Strauss. 1912.
 Dunning Sturdevant. 1912.
 *Mrs. Mary (Stark) Sturdevant. 1912.
 Guy Sturdevant. 1912.
 *William Henry Sturdevant. 1858.
 Walter Coray Sutherland. 1900.
 Isaac Miner Thomas. 1915.
 Mrs. Elizabeth W. (Ayres) Tompkins. 1920.
 Miss Mary L. Trescott. 1913.
 Rev. Frederick von Krug, D. D. 1900.
 Theodore Constant VanStorch, Jr. 1912.
 Ralph Holberton Wadhams. 1897.
 Levi Ellmaker Waller. 1901.
 Samuel D. Warriner. 1901.
 William O. Washburn. 1907.
 Hon. Louis Arthur Watres. 1909.
 Hon. Frank W. Wheaton. 1895.
 Henry Hunter Welles, Jr. 1895.
 Mrs. Stella H. Welles. 1895.
 Theodore Ladd Welles. 1900.
 L. McLean Wilson. 1906.
 Hon. John Butler Woodward. 1895.
 Frederick E. Zerbey. 1903.

*Deceased.

Annual Members Living	150
Life Members	242
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Life Members Died during Year	8
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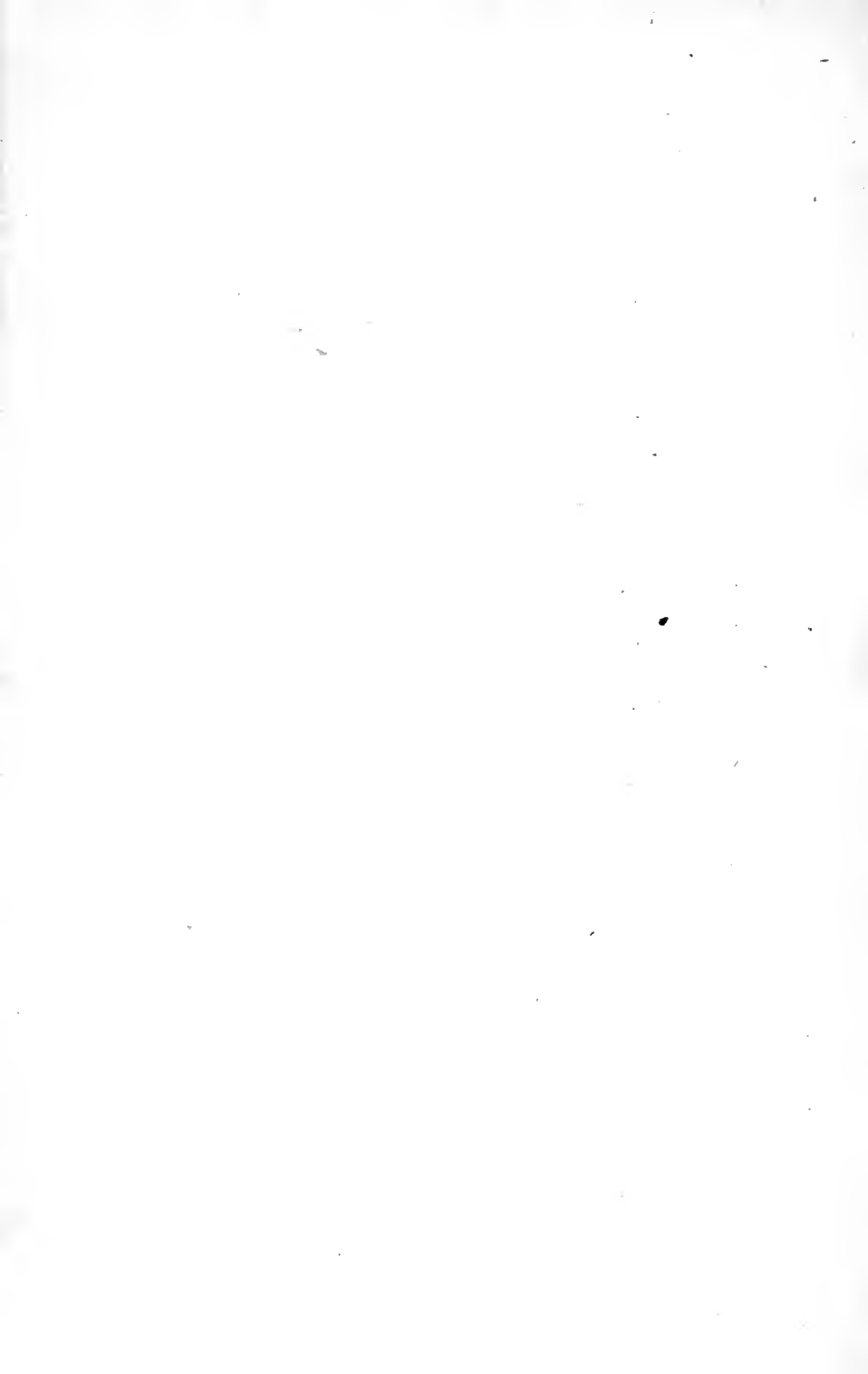
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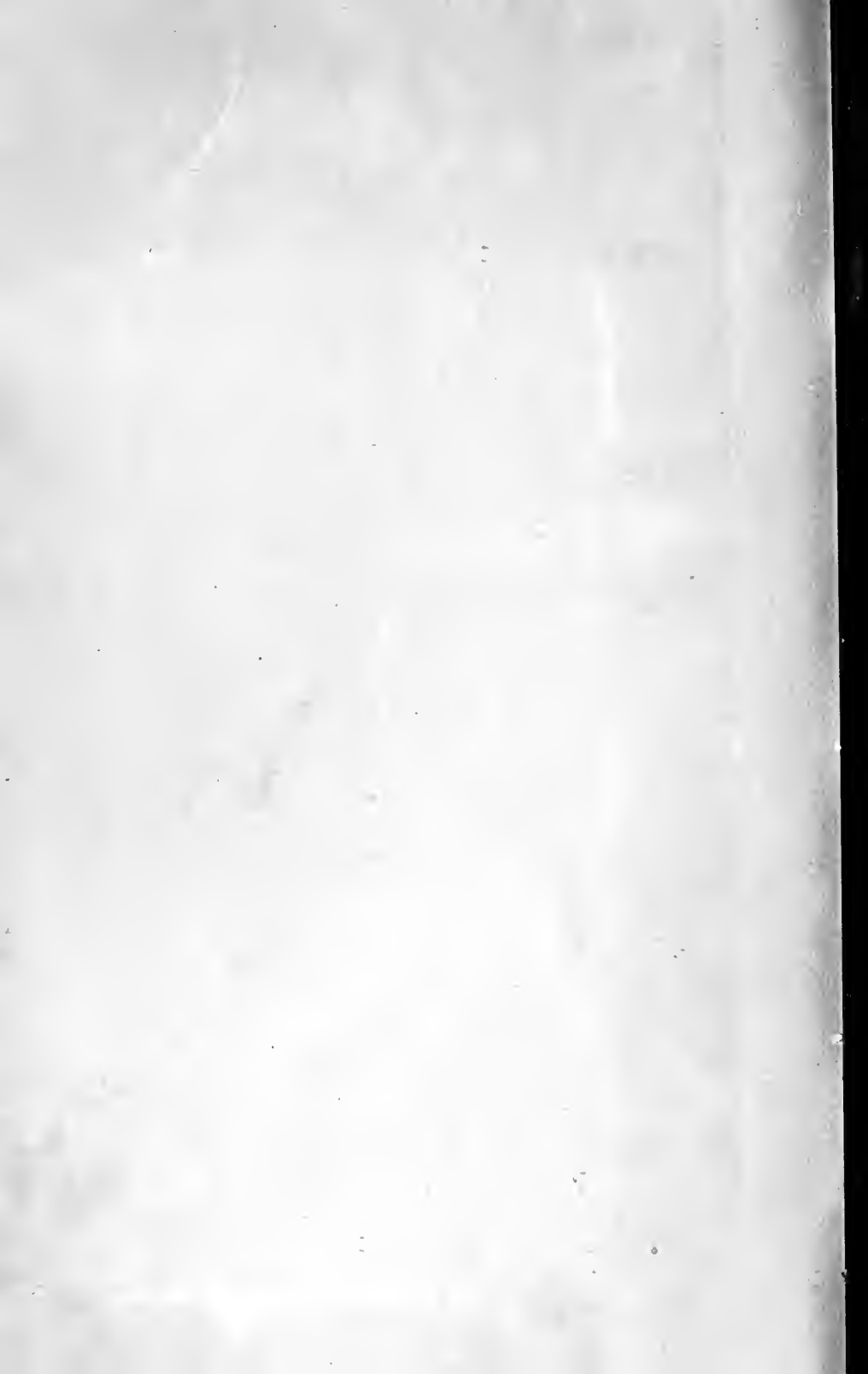
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